1-1-2000

College satisfaction of Iowa State University national merit scholars

Deborah Kay Holmes
Iowa State University

College satisfaction of Iowa State

University national merit scholars

by

Deborah Kay Holmes

A thesis submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Major: Education (Higher Education)

Major Professor: Nancy J. Evans

Iowa State University

Ames, Iowa

2000

Graduate College

Iowa State University

This is to certify that the Master's thesis of

Deborah Kay Holmes

has met the thesis requirements of Iowa State University

Signatures have been redacted for privacy

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

This study compared the college satisfaction levels of Iowa State University national merit scholars with students in a national 4-year public institution comparison group. This same comparison was made between Iowa State national merit engineering students and Iowa State non-national merit engineering students.

Satisfaction levels were obtained through the Student Satisfaction Inventory (SSI), which addressed twelve scales or aspects of campus life. This study examined nine of the twelve scales, which included: academic advising effectiveness, campus climate, concern for the individual, instructional effectiveness, recruitment and financial aid effectiveness, service excellence, student centeredness, campus support services, and campus life. The SSI allowed students to score all items based on satisfaction level and importance level. Resulting data concerning satisfaction and importance scores are examined as well as data provided on the disparity level (importance rating minus satisfaction rating) for each scale. The disparity level gave insight as to whether students' expectations at Iowa State University had been met.

Iowa State national merit scholars were found to be significantly more satisfied than the students in the national comparison group in eight areas with the highest level of significant difference occurring in academic advising effectiveness, campus life, and recruitment and financial aid. National merit engineering students were significantly more satisfied than the Iowa State non-national merit engineering students in six areas with the highest level of significant difference occurring in academic advising effectiveness, instructional effectiveness, and recruitment and financial aid.

To conclude, national merit students at Iowa State University were satisfied with college life but their expectations had not been *exceeded* in any of the nine areas examined,

leaving room for improvement. Iowa State national merit scholars found different aspects of campus to be important when compared with students included in the national comparison group. National merit engineering students and non-national merit engineering students at Iowa State were much more similar in what they determined to be important. The disparity level of each scale and the questions in that scale led to a discussion of implications. The implications for this study can be applied to all students at Iowa State University.

CHAPTER I. INTRODUCTION

General Introduction

Each year, Iowa State University attempts to recruit individuals from three designated categories of high ability students: National Merit Scholars, National Achievement Scholars and National Hispanic Scholars. In the competitive educational marketplace of today, Iowa State University, through the Office of Special Recruitment, must constantly search for new recruitment strategies in order to attract such highly sought after students.

Currently, Iowa State University ranks 18th in the nation for recruiting national merit scholars and enrolled more national merit scholars than all other Iowa schools combined in 1999 (Annual Statistical Report, Iowa State University, 1999) (please see Appendix A for additional rankings and demographic data). During the fall and spring semesters of 1998-99, the Office of Special Recruitment enrolled and awarded scholarships to 116 national merit scholars, 9 national achievement scholars, and 10 national Hispanic scholars. This was the highest number of entering freshman who were national achievement or national Hispanic scholars in the university's history.

Iowa State University continually strives to be a leader in the recruitment of high ability students. One possible strategy to help ensure this status might include assessing the satisfaction rates of current national merit scholars on campus. The process for improvement can itself have a positive impact on a campus when students, faculty, administration, and staff are involved in creating and implementing solutions.

Definition of Terms

The three categories of scholars as defined by the National Merit Scholarship Corporation (NMSC) are: National Merit, National Achievement, and National Hispanic. Ethnic make-up of these categories is as follows: national merit - any ethnic group; national achievement - African American students; and national Hispanic - Hispanic students. As an example, an African American student could be both a national achievement and national merit scholar. For the purposes of this study, the focus will be solely on national merit students. The sample population of national achievement and national Hispanic scholars at Iowa State is not large enough at this time to be included as part of this study.

The qualifying procedures for national merit hopefuls begin in October when, each year, approximately one million high school juniors take the combined Preliminary Scholastic Assessment Test/National Merit Scholarship Qualifying Test (PSAT/NMSQT). The top five percent of all test takers are eligible for national merit scholarships. This group of 50,000 is reduced to 15,000 semifinalists by selecting the top scores from all 50 states. A state receives the same percentage of semifinalists as the state's percentage of total student enrollment compared to the total student enrollment in the country. The students making the cutoff receive national merit scholarship applications. Applicants move to finalists by review of yet another exam, the Scholastic Assessment Test (SAT), review of their high school grade point average and a recommendation from their high school principal. Ninety percent of the semifinalists make the final competition. Two thousand of the best of the best receive a $2000 cash scholarship from the National Merit Scholarship Corporation (NMSC). In addition, 2,500 corporate sponsored National Merit Scholarships are awarded to finalists whose parents are employees of a corporate sponsor.

Warrant for the Study

Iowa State University, through the Office of Special Recruitment, takes pride in the high number of scholars it enrolls. It can be said that a goal of the university is to pursue and retain national merit scholars. The Office of Special Recruitment uses a variety of recruitment strategies to help ensure that enrollment of national merit scholars will continue to increase. National merit finalists, who are Iowa residents and make Iowa State their first choice institution, receive a full tuition, room and board scholarship for four years (eight semesters). The identical scholarship package is also offered to approximately 50 out-of-state scholars, who select Iowa State as their first choice institution by a deadline set early in the academic year. Out-of-state students who do not select Iowa State as their first choice early enough in the process are eligible for a $6,000.00 scholarship per year for a total of four years, which is approximately half of the out-of-state tuition.

Scholars who visit Iowa State's campus receive personalized treatment through the Office of Special Recruitment. Visits are scheduled according to each student's specific interests. Students will typically meet with chairs of the department, deans of colleges, and distinguished faculty in their areas of interest. Iowa State encourages as many scholars as possible to visit its campus. Several mailings are sent throughout the course of the year to inform potential scholarship recipients of their standing in the merit process as well as highlighting Iowa State's unique aspects.

It has been shown that the recruitment of national merit scholars is an area of focus for Iowa State University. Equal importance should be placed on the assessment of the satisfaction levels of scholars who have chosen and are currently attending Iowa State. Assessment puts a university in the best position to make significant gains in meeting students'

expectations. It allows the institution to know precisely where and where not, to focus time, money, and efforts. Setting priorities is easier and more meaningful when a university knows exactly what matters to its students.

Purpose of the Study

National merit scholars typically have their choice of attending institutions such as Harvard and Yale Universities. Iowa State University competes with these schools in the recruitment of high ability students. Efforts made by Iowa State to improve student satisfaction may help to recruit students who might otherwise attend an Ivy League university.

Utilizing the results of this study will make it possible to identify areas in which students feel there could be improvement. Requesting student feedback shows that Iowa State is concerned about student satisfaction and will strive, based on the results of this study, to improve that satisfaction. Iowa State cannot only look at retention data to determine satisfaction of national merit scholars because the scholarship package awarded to these students interferes.

In completing the literature review (chapter two), it became apparent that college satisfaction/retention is based on a combination of factors consisting of students' characteristics and the college environment. The instrumentation used in this study evaluates aspects of these factors as defined in chapter three.

The central purpose of this study was to determine the extent to which national merit students, currently attending Iowa State University, are satisfied with their college experience. Additional analysis was done that compares results from this study to other populations.

Aspects of satisfaction that were examined include the following:

1. Academic advising effectiveness
2. Concern for the individual
3. Instructional effectiveness
4. Recruitment and financial aid effectiveness
5. Service excellence
6. Student centeredness
7. Campus life
8. Campus climate
9. Campus support services

If Iowa State hopes to increase its numbers of national merit students, examining the topics above will help target areas of dissatisfaction, which can lead to improvement through change. This type of change, instigated by the students, could only lead to improved quality of student life on campus and improved student morale (students will know their input resulted in action). The results from this study will help achieve this goal, and in turn, achieve the university's goal of remaining a leader in the recruitment of national merit scholars. It is anticipated that this study will assist college personnel in the development of improved recruitment strategies that promote strengths of the university and help to address areas of weakness throughout campus.

Theoretical Framework

Assessment and evaluation is a critical component to any intentionally designed developmental intervention (Evans, Forney, & Guido-Dibrito, 1998). In order to recruit high ability students more successfully and to develop interventions that may lead to greater satisfaction of current students, assessment must first be done. Environmental assessment has great potential for several reasons:

1. Environmental assessment can be a powerful change strategy.
2. Environmental assessment can be adapted to gather information relevant to many different kinds of questions and settings.
3. Environmental assessment techniques have the potential to be particularly useful when combined with knowledge of developmental theory. Professionals in the field of higher education now know what developmental changes to expect in students.
4. Environmental assessment provides a technique to determine whether the environment is encouraging these outcomes (Evans, 1983).

The format of an environmental assessment questionnaire can also be guided by theory, (Evans, 1983). Stern (1970), Pervin (1967), and others suggested that the similarities between the person's needs and what the environment can offer is important in determining outcomes such as satisfaction and development. Using an assessment tool that asks about perceived differences between the ideal and real environment is an important goal. College students hold numerous expectations about their college experience. Understanding the expectations of students and their degree of satisfaction with college life can prove useful to those interested in improving the college experience for students.

Thesis Organization

In chapter II, I discuss a review of relevant literature related to this area of study. Chapter III outlines the design and methods that I used to obtain results. Chapter IV includes a summary of the results related to each research question. Descriptive statistics are provided. Finally, chapter V discusses conclusions and implications regarding the results, limitations of the study, and suggestions for further research.

CHAPTER II. REVIEW OF LITERATURE

Introduction

My first attempt to define the available literature consisted of using the research question as a guide. The search for relevant literature, therefore, attempted to link national merit scholars and college satisfaction. No articles were located using this inclusive search for this specific topic.

A further inclusive attempt was made to link the above categories to Iowa State University and again no literature was located. It would appear that there is no specific research linking or attempting to link national merit scholars to college satisfaction, nor research linking either of these categories to Iowa State University. This absence of literature indicates a need for this particular study and area of research.

As an alternative, each category was isolated and a search for literature was conducted. Search categories included: national merit scholars, college satisfaction, college expectations; and a derivative of these categories, high ability students and college. An additional search was conducted that included retention literature specific to high ability students. It could be assumed that staying at school would suggest at least a minimal level of satisfaction. A limited amount of relevant information was found in each of these categories, again indicating the need for further research in this area.

High Ability Students and College

Students who rate themselves among the highest ability categories in college are more likely to enroll in honors programs, be elected to a student office, and become resident

advisors (Hurtado, 1995). By contrast, students who rate themselves in the lowest and middle categories of ability are more likely to be employed off campus, join a fraternity/sorority, and spend more time socializing. Students who rate themselves as low ability are more likely to participate in intercollegiate sports and spend more time with friends of the same ethnic social background. High ability students are more likely than medium and low ability groups to dine, study, room with, and date someone of a different racial/ethnic background, while students who rate themselves in the lowest ability category are least likely to interact across race or ethnicity. It is apparent that students' self-perceptions of their ability plays a role in how active they are and what types of activities they become involved in during college.

Most of the published materials available on high ability students or national merit students pertain to ***how*** and ***why*** they select certain colleges. The literature does not address what their satisfaction level is once they are attending college. Considering the number of colleges that are competing for high ability students, the need for data on selection criteria is substantiated. According to one study, (Litten, n.d.) high ability students choose a college based on information from four areas:

1) published research comparing various schools' areas of studies as well as some published comparative data from various sources,
2) young adult fiction that deals with issues related to college choice,
3) media accounts of college admission and college choice, and
4) conversations with other students who are in the process of choosing colleges.

A similar study suggested that high ability students' choices are influenced by net attendance costs and that attendance cost effects decline as parental income increases (Weiler, 1996). Nonmonetary and nonacademic factors, such as housing and recreational options, are

also heavy determinants of college choice. It is also interesting to note that high ability students participate in campus programs more. The smallest differences in use of campus programs between ability groups are in areas most directly related to improvement of academic skills (Friedlander, 1980). According to several other studies, students involved in out-of-class activities are more positive about their college experience, are more satisfied with their social life, living environment, academic major, and contacts with faculty (Keagan, 1978). These students are also more likely to graduate (Astin, 1977; Kapp, 1979; Pascarella, 1980) than students who are not involved are. To conclude, high ability students are more likely to be involved in college activities and therefore are more likely to be satisfied with their overall college experience.

National Merit Scholars

As mentioned earlier, much of the information found on national merit scholars pertains to how and why they select the institutions they do. This information is important to examine because initial reasons for selecting an institution would, logically, lead to expectations of that institution. These expectations may or may not be met once the student is actually attending the institution. In a study of Maryland national merit and national achievement semifinalists, the reasons that appeared to be instrumental in attracting the greatest number of students were related to perceived strengths of the institution and how well the institution serves its graduates (Keller & McKeown, 1984). The following reasons were cited the most frequently: the overall reputation of the school, the attractiveness of the program in the student's major, the success of the graduates in finding a job or getting into

graduate school, and the quality of the student body at the institution.

In a study conducted by the Maryland State Board for Higher Education (1985), the college plans of 167 Maryland high school seniors who qualified as National Merit or Achievement semifinalists were surveyed. Findings are displayed in Table 1.

Table 1. College plans of Maryland national merit and achievement semifinalists

College plans	Percentage of students
Out-of-state private	58%
Out-of-state public	22%
In-state public	10%
In-state private	8.6%

The study also identified that a greater percentage of black semifinalists than white semifinalists planned to enroll at Maryland public institutions. Most of the students (all ethnicities included) who had decided on a major intended to study engineering (32 percent) or one of the physical sciences (20 percent). Sixty (60) percent reported that no more than one-fourth of their first-year college costs would be covered by the financial aid package they were offered at different institutions throughout the country. Fifty-seven (57) percent of the students who planned to attend a Maryland public institution had most of their first-year costs met by financial aid, while 31 percent had all of their expenses covered. Over half of the students selected institutions that wouldn't pay for one-half of their freshman year tuition, room, and board fees. Outwardly, the Maryland data indicated that school reputation and status have a more significant impact than a full tuition, room and board package for a majority of the students in the study.

Similar studies were conducted of national merit semifinalists in the state of Kansas (Westerman, 1993a). Information was gathered from 67 high schools concerning enrollment of 159 Kansas national merit semifinalists. Results revealed that 32 percent of those who expressed preferences actually enrolled in institutions that were not among their three earlier choices. A total of 37.5 percent enrolled in Kansas institutions. The 159 students selected 68 different colleges and universities. Eleven institutions account for over one-half of their selections. Forty-two percent of males chose Kansas institutions in contrast to 32 percent of females. Public colleges/universities were chosen by a majority of students. Females chose private and religious institutions more frequently than did males. Only 37.9 percent of the students actually enrolled in their first choice schools, 18.4 percent in their second choices, and 11.7 percent in their third choices. The authors reported that financial considerations would actually determine which colleges/universities students would attend. This article gives further insight into the types of institutions that national merit students are choosing.

Another Kansas study listed common characteristics of national merit semifinalists (Westerman, 1993b). Some of the relevant characteristics reported include the following:

1) the majority of semifinalists are male and Caucasian,
2) parents are unusually stable and well educated,
3) students are very involved in extra-curricular activities and/or hold high school leadership positions,
4) more than half hold a part-time job,
5) nearly two-thirds have traveled outside of the United States,
6) 70 percent report taking advanced placement courses,
7) almost 80 percent assigned their schools a grade of "A" or "B",

8) and more than one-third had not made a career choice.

It is interesting to note that 80 percent of Kansas national merit semifinalists assign their high school a grade of "A" or "B". The results of this study will help to determine if Iowa State scholars give a similar high rating to college.

A study conducted of Indiana national merit scholars revealed that more students majored in engineering, architecture, and physical/natural sciences than business and education fields (Higgins, 1984). The result of another Indiana study conducted with Indiana national merit semifinalists revealed that 88 percent of these students come from homes where the original parents are still married to each other (Higgins, 1982). Two-thirds of the fathers are college graduates and 47 percent have graduate degrees. As for the mothers, 51 percent have their baccalaureate and 29 percent attended graduate school or received advanced degrees. According to Higgins (1982), a frustration of many national merit scholars is that financial aid goes more readily to those students in need, not to students who are academic achievers. Many scholars find that they are forced to stay at an institution in state because out-of-state tuition is so expensive and the institutions do not give out enough scholarship money to make it affordable.

Another study was conducted that focused on characteristics of national merit scholars enrolled in rural public schools (Peltier, 1989). Results of this study indicated that rural scholars were more likely to be female (45.5%) and Caucasian (98%). Involvement in extracurricular activities was significantly higher for rural merit scholars. Among rural scholars 37 percent completed the equivalent of five years of English and mathematics, but only 26 percent finished three years of a foreign language. Only 14 percent of non-rural scholars had an "A" average, while 64.7 percent of rural scholars did. All of the scholars

reported using computers in school. Sixty-five (65) percent of rural scholars had a family income of $20,000 dollars or less. Many of the students attending Iowa State University are from rural Iowa towns. The above characteristics may apply to much of the sample used for this study.

Out of the total number of students selected to be scholars each year, several high performers who meet specified preferential criteria, such as parental employment at a sponsoring business, are selected for Corporate Merit Scholarships (Higgins, 1983). Some are chosen because they live where a sponsor has facilities or are planning to enter a particular area of study that the company wishes to encourage. The dollar amount awarded could range from $250-2000 per year; the reported average amount awarded in 1982 was $1,350. Many finalists also receive a one-time $2,000 dollar award from the National Merit Scholarship Committee. At Iowa State University any award that is given to the scholar outside the university is considered above and beyond what Iowa State offers in scholarship money.

College Satisfaction

The majority of literature on college satisfaction has examined the relationship between satisfaction and stable student characteristics like sex and age. In general men have been found to be more satisfied than women with college, and adult students have described themselves as more satisfied than younger students (Betz, Klingensmith, & Menne, 1970; Sturtz, 1971). Certain aspects of the college environment, such as a student's employment during the academic year, and the number of activities in which a student participates, suggest differences in how students may experience college.

One particular study (Pennington, Zvonkovic, & Wilson, 1989) asked the question: Does college satisfaction change over an academic term? The results indicated that overall college satisfaction did change over time. As expected, the lowest scores on college satisfaction were reported at midterm time. Overall satisfaction, however, appeared to be somewhat higher toward the end of the term than at any other time. This research gives insight into the most beneficial time to send out a college satisfaction questionnaire. In order to produce unbiased results, the survey should not be distributed at midterms or at the end of the semester. The same study also discussed important student characteristics as they relate to levels of college satisfaction. Significant differences were found by Greek affiliation, employment hours, GPA, and living situation.

How students balance their academic experiences with their residential life and with their paid work has implications for their satisfaction with college. It should be noted that students with different GPAs exhibit different feelings about college (Pennington, et. al., 1989). As might be expected, students with the highest grades were more satisfied (Starr, Betz, & Menne, 1972). If students with higher GPAs were more likely to be satisfied with college then it would be assumed that high ability students would tend to be more satisfied at Iowa State University than students of other ability levels. Also students who spend more hours per week studying, doing homework, working on group projects in class, and spending less hours commuting are more likely to be satisfied with their overall instruction in college (House, 1998).

Differences across majors in students' satisfaction with their academic program and the effect of gender on any differences have been studied. It was found in one study (Behuniak & Gable, 1980) that students' satisfaction with college differed across majors. It was also found

that levels of satisfaction with college vary across majors differently for males and females. As an example, results indicated that satisfaction with teachers and social life were more relevant factors for males than for females. Considering that a larger portion of national merit scholars at Iowa State are male and major in either engineering or one of the sciences, selection of a major and student gender could be a factor in their satisfaction level.

The remaining studies that were located compare and contrast college satisfaction between several different groups on the basis of gender, age group, and ethnicity. One study attempted to measure the relationship between self-concept and college satisfaction (Anolik, 1980). Results explained how older students were more satisfied with their academic performance then younger students, which was more highly correlated with their self-concepts. Within-group gender differences showed that younger females were more satisfied with college than younger males, and older females expressed less self-confidence than older males.

A study that focused on persistence to graduate education revealed interesting data pertaining to gender (Ethington & Smart, 1986). Both academic and social integration are significant for men and women, however academic integration has a greater influence for men, whereas for women, social integration has a slightly larger effect.

African American and Hispanic students who attend predominately white institutions such as Iowa State University, have different issues that effect their satisfaction while in college (Bennett & Okinaka, 1989). In a study done at Indiana University, it is clear that there exist two different issues. First, is the issue of student attrition and the continuing high dropout rates among Blacks and Hispanics on campus. The second issue, of equal importance, is the negative quality of campus life for ethnic minorities and strong feelings of social

alienation and dissatisfaction. Satisfaction, openness, and college adjustment are important predictors of persistence among under-represented groups. National merit students who are African American or Hispanic may have lower overall satisfaction scores than their Caucasian peers for the very reasons stated above.

An additional area that can significantly affect college satisfaction is a student's college roommate (Lovejoy, Perkins, & Collins, 1995). Students who report little or no conflict with a roommate(s) have higher overall college satisfaction scores than do students who report several instances of conflict. Problems with roommate relationships are very disruptive to a student's academic and social life. Early identification of roommate conflicts by a hall director and subsequent follow-up that may include breaking up the roommates is the best scenario for improved college satisfaction.

College is a major event in the lives of many people but comparatively few studies have focused on the nature of satisfaction with college life. Betz, Klingensmith, and Menne (1970) reviewed the literature on college satisfaction and reported that of the few studies that have been undertaken, most are inadequate due to methodological issues involving instrumentation. The use of a well-tested and valid instrument is a critical component to a worthwhile quantitative study.

College Expectations

A student's initial expectations of a college or university may differ from the reality of the actual experience (Wofford & Timmerman, 1982). Those involved in the admissions process today are using consumer-marketing techniques to design recruitment activities. The

market for students is a buyers' market and is expected to stay that way in the immediate future. In such an environment, it is essential to the longevity of an educational institution to know how and why students decide to enroll. While studies in this area are important, it is just as vital to look beyond the how and why of college selection to post-purchase concerns.

The purpose of one study was to determine the relationship between students' expectations and actual experiences with higher education (Widdows & Hilton, 1990). This relationship can be referred to as the expectation gap. This gap is defined as the difference between what a consumer expects of a product or service and what the consumer actually experiences after purchasing the product or service. (The instrument used in this study of national merit scholars at Iowa State University will allow this expectation gap to be analyzed.) Students enter into higher education with certain expectations. If they are able to realize those expectations, students are likely to be satisfied with the institution. If expectations are not realized, students are likely to be dissatisfied. Results from this particular study that was conducted at a large Midwestern university, indicated that prior expectations of students concentrate on the education they are to receive and how it will benefit them, while concerns include their apprehensions about surviving in their new environment. Post-enrollment data showed that students' expectations were surpassed in the area of academic reputation and that freshman students' prior concern about adjusting to a new environment disappeared after enrollment. Frustration seems to have been experienced in the more fundamental aspects of daily life such as: teaching assistants, housing, and financial aid. Students were also asked if the university had met their overall expectations. This question elicited 92.8% "yes" answers. This figure was interesting because it was very close to the university's retention rate of freshman students into the second semester.

A follow-up study concluded that areas with a large expectations gap score could be the result of an exaggerated or idealistic view that high school seniors may have of their institutions of choice (Struckman-Johnson & Kinsley, 1985). Many times expectations may fall short due to a high school senior's idealism versus the real world actuality of the college experience.

In a study conducted at Lima Technical College in Ohio it was determined that student expectations included affordable tuition, knowledgeable faculty, affordable book prices, a degree, convenient class times, state-of-the-art equipment, relevant programs, financial aid packages, reasonable class sizes, and a safe and clean environment (Casto, 1995).

It has been determined that perceived institutional effectiveness, interpreted as consumer satisfaction with academic studies, students services and student life, has only a modest influence on students' academic success and attrition (Molnar, 1996). When the term "Customer Satisfaction" is given an even broader definition to include satisfaction with friends and off-campus social life, it still has only one-tenth the power of GPA alone to predict student persistence. Therefore, while satisfaction cannot assure retention, institutional strategies to improve students' academic performance and ensure progress toward degree completion may help to improve persistence.

Retention

Reviewing studies on retention can give insight into college satisfaction, given that retention signifies at least a minimal degree of satisfaction. It appears from one study that determinants of retention/attrition are not merely shaped by the kinds of students enrolled in

college but influenced significantly by institutional conditions, such as programs, policies, organizational patterns, and an interactive climate (Gates & Creamer, 1984). This would indicate that a survey such as the one employed in this study would give valuable insight into college student satisfaction by giving students a chance to rate these institutional conditions. This particular study, in fact sought to answer the question, do student or institutional characteristics contribute most to retention of students? The study did find that institutional characteristics might account for more variation in retention status than do student characteristics. In addition, it was determined that retention rates do vary across curricular areas and that those students who were more focused on an eventual career were more likely to stay in school.

According to studies reviewed by Pascarella and Terenzini (1991), the person-environment fit has a direct and indirect effect on whether the student persists or leaves school. Tinto's theory of student departure (1987) emphasizes the opposite of institutional characteristics and focuses on the individual. He feels that the way freshman react to their new environment depends on their pre-college schooling and background, as well as their initial intentions about graduating from college and other personal goals. Tinto also believes that the greater a student's level of social and academic integration, the greater a student's commitment to the institution and their graduation. Pascarella and Terenzini (1983) found that social integration had a stronger effect on the persistence of female freshmen and academic integration had a stronger effect on the persistence of male freshmen.

It is apparent from the previous studies that both the college environment and individual student characteristics play a role in retention. This substantiates the need for this

study to examine both the college environment of national merit students, through a survey and national merit student characteristics, through demographic research.

In a study that compared the implications for retention of high ability students versus average ability students, results indicated that high ability students perceived faculty as having a greater interest in teaching at the beginning of the school year as opposed to the end (Kennedy, Gordon, & Gordon, 1995). Freshman honors students apparently had greater expectations of faculty teaching than the non-honors students did. These results suggest that honors students enter college with higher expectations of faculty than non-honors students. This seems reasonable given that Iowa State as well as many other colleges throughout the country actively recruit high-ability students and arrange their visits to campus to include meetings with faculty members. Could this mean that high ability students are led to have unrealistic beliefs or expectations of college during the recruitment process?

In a study conducted on college persistence and completion patterns in higher education it was concluded that attaining a degree is influenced by intellectual ability and socioeconomic status (Ottinger, 1991). African American and Hispanic students are less likely to persist to graduation due to the large numbers who enter college on the nontraditional path. College campuses that have proven successful at increasing retention rates have the following available to all students: supportive campus climate, adequate academic support service, and general student support services.

Targeting high risk and low risk student retention was the focus of a study that utilized a survey entitled "Student Adaptation to College Questionnaire" (Krotseng, 1991). It was determined that students who manifest high attachment to the university and an average GPA are at the lowest risk for withdrawal from college. Students with a low attachment but high

GPA are at a higher risk for withdrawal and students having low attachment and an average GPA were at the highest risk. This information would suggest that in order to retain and satisfy national merit students, who would most likely have an average to high GPA, feelings of attachment to the university would also be important.

Why do students choose to leave college? One study examined this issue and came up with the following reasons: academic matters, financial difficulties, motivational problems, personal considerations, and dissatisfaction with college (Lyons & others, 1983). Dissatisfaction with college consisted of school size, social environment, academic offerings, housing accommodations, treatment by personnel, and interactions with faculty members. Other areas that contribute to retention are; academic advising, curricular offerings, work outside of school, counseling support system, extracurricular offerings, students' involvement in campus life, limited educational achievement and indecision about major. The survey used in this study of national merit students at Iowa State addressed the above issues. Retention programs should give special attention to academic stimulation, personal future building, and involvement experiences. Both high ability and low ability students will respond positively to retention programs.

Another study that examined the sort of interventions that motivate students to stay in classes determined a major factor to be teacher effectiveness (Ramirez, 1983). Teacher effectiveness was defined by good organization, unambiguous objectives, high expectations and positive regard for students, encouragement of participation, and feedback. Other interventions helpful in reducing attrition include student homogeneity in terms of learning skills, concern and intrusiveness by instructors, structured learning environments, modeling

successful learning skills, and creative curricular approaches, (such as interdisciplinary team teaching).

Data collected from the Cooperative Institutional Research Program follow-up surveys were used to study student retention at four-year colleges and universities (Dey, 1990). It was found that individual characteristics that are positively correlated with retention include an above average high school grade point average, above average admission test scores, and being female. Results can be used by researchers to statistically control for the influence that student characteristics have on retention, and then make valid inferences about the effect that the college environment has upon retention.

According to this study, the retention rates at any institution can be greatly affected by the kinds of students it enrolls, over and above the effects of the institutional experience itself. For example, a student with high school grades averaging "A" or "A+" is six times more likely to complete a bachelor's degree in four years as a student whose high school grades were below a "C+". Likewise, students with high admission test scores are more likely to graduate in four years. When combining these two statistics it can be said that students with "A" averages in high school and SAT scores exceeding 1300, are 12 times more likely to graduate in four years than those students with a "C+" average and SAT's below 700. This provides evidence that national merit scholars would be very likely to graduate from college in four years. Once student characteristics have been controlled for, such as the pre-college factors proven substantial in the above study (high school GPA, admission test scores, and gender), researchers can make valid inferences about the effect that the college environment has upon retention.

Conclusions

In summary, the combination of topics discussed in the literature review revealed data relevant to this study as well as demonstrating a need for this specific research area.

College satisfaction and retention are dependent on both the college environment and individual student characteristics. According to the literature, students with higher GPAs and students who are more involved tend to also be more satisfied with college. High ability students fall into both of these categories. This implies that national merit scholars may be more satisfied than the general student population with their college environment. The literature also revealed that a school's reputation and status have a significant impact on selection decisions as do financial considerations and that high ability students enter college with higher expectations (specifically of their instructors) than students of average ability.

Student's initial concerns when beginning their college career included apprehensiveness about surviving in a new environment. This apprehension tends to disappear once students are actually attending college. Instead students find their frustration in the fundamental aspects of daily campus life. It was also found that students' initial expectations are surpassed in the area of academic reputation once attending college. When surveyed, the majority of first semester freshmen say their overall expectations of college have been met. This is supported by a comparable retention rate of freshmen students into the second semester. However, some high school seniors have an exaggerated or unrealistic idea of what college life will hold.

The majority of information available on national merit students pertains to ***how*** and ***why*** they select the schools they do. This information is important because initial reasons for selecting an institution would lead to expectations of that institution. Student disappointment may occur when unrealistic expectations are the result of specialized treatment during initial

visits to campus. Pre-college factors also play a significant role in attrition according to retention studies. High admission test scores and above average high school GPAs result in a greater chance of persistence to graduation. Grade point average is also a stronger predictor of college retention than a student's satisfaction.

National merit students in general have individual characteristics that would suggest that they are more likely to be satisfied with college and persist to graduation. On the other hand, they may have very high or unrealistic expectations of the university that give them a feeling of dissatisfaction once they are enrolled. Other factors such as gender, age, ethnicity, socioeconomic status and major selection play a role in retention and satisfaction. Demographic data collected as part of this study would allow for comparisons to be made in future studies using some of these individual characteristics.

CHAPTER III. METHODS AND DESIGN

Introduction

This chapter includes a discussion of the methods and design used in this study. The research questions are stated, followed by details concerning the sources of data. The instrument that was used to collect the data is described followed by a section on methods that were used to ensure the successful collection of this data. The hypotheses are stated and through the data analysis section, it is indicated how the hypotheses were analyzed.

Research Questions

1) Are national merit students at Iowa State University satisfied with their college experience when compared to students in the national comparison group?
2) Are Iowa State University national merit engineering students satisfied with their college experience when compared with non-national merit Iowa State University engineering students?
3) Do Iowa State University national merit students and students included in the national comparison group find the same aspects of college life important?
4) Do Iowa State University non-national merit engineering students and Iowa State national merit engineering students find the same aspects of college life important?

Data Sources

In this study, the population consisted of national merit students who had provided Iowa State with their home address, were enrolled at Iowa State for spring semester 2000, and returned a completed survey to the researcher. Four hundred and sixty-five students were surveyed in total. This population consisted of freshmen through seniors, males and females, comprising all of the ethnic groups represented by national merit students at Iowa State University. Students were residents of the state of Iowa as well as many other states throughout the country.

Instrumentation

The Noel-Levitz Student Satisfaction Inventory (SSI) was used to obtain the results for this study. (Please see Appendix B). The SSI provided an opportunity to compare the results of this survey to a database of other four-year public institutions. (Please see Appendix C.) Other reasons for selection of the SSI as an assessment tool, are related to what the SSI can provide. The SSI collects student feedback on over 100 items that include:

- 73 items concerning student expectations for and satisfaction at 4-year colleges and universities,
- 10 optional items that may be defined by the institution,
- 6 items that assess the institution's commitment to specific student populations,
- 9 items that assess pre-enrollment factors,
- 3 summary items that assess overall satisfaction with the institution,
- 13 demographic items that identify demographic characteristics of respondents,

- 2 optional items that further identify the demographic characteristics of respondents.

Of the 73 items included in the SSI concerning college expectations, the following 12 composite scales are addressed:

Academic advising effectiveness assesses the comprehensiveness of the academic advising program, evaluating advisors' and counselors' knowledge, competence, approachability, and personal concern for students. This scale consists of items that include these topics: academic advisor responsibilities and specific major requirements. This scale includes questions 6, 14, 19, 33, and 55.

Campus climate measures the extent to which the institution provides experiences that promote a sense of campus pride and belonging. This scale consists of items that include these topics: students' feelings of welcome, students' sense of belonging and pride, and the extent to which the staff, administrators, and faculty are willing to care and be helpful towards the students. This scale includes questions 1, 2, 3, 7, 10, 29, 37, 41, 45, 51, 57, 59, 60, 62, 66, 67, and 71.

Campus life assesses the effectiveness of student life programs offered by the institution, covering issues ranging from athletics to residence life. This scale also assesses campus policies and procedures to determine students' perceptions of their rights and responsibilities. This scale consists of items that include these topics: satisfaction with residence life and campus organizations. This scale includes questions 9, 23, 24, 30, 31, 38, 40, 42, 46, 52, 56, 63, 64, 67, and 73.

Campus support services assesses the quality of support programs and services. This scale consists of items that include these topics: library staff and resources, computer accessibility, academic support services and bookstore staff. This scale includes questions 13, 18, 26, 32, 44, 49, and 54.

Concern for the individual assesses commitment to treating each student as an individual. Included in this assessment are those groups who frequently deal with students on a personal level (e.g., faculty, advisors, counselors, and residence hall staff). This scale consists of items that include these topics: the extent to which faculty, counseling, advising and residence hall staff shows concern for students as individuals. This scale includes questions 3, 14, 22, 25, 30, and 59.

Instructional effectiveness measures students' academic experience, the curriculum, and the overriding commitment to academic excellence by the institution. This scale consists of items that include these topics: commitment to academic excellence, quality of instruction and value of course content, as well as evaluation of faculty, adjunct faculty, and graduate assistants. This scale includes questions 6, 14, 19, 33, and 55.

Recruitment and financial aid effectiveness measures the extent to which admissions counselors are competent and knowledgeable, along with students' perceptions of the effectiveness and availability of financial aid programs. This scale consists of items that include these topics: student feelings pertaining to the knowledge of admissions staff and counselors

and their ability to accurately portray the campus and the ability of the financial aid office to be helpful and available to students. This scale includes questions 4, 5, 12, 17, 43, and 48.

Registration effectiveness assesses issues associated with registration and billing and the extent to which the registration process is smooth and effective. This scale consists of items that include these topics: registration and billing procedures and the willingness of business office staff to be helpful towards students. This scale includes questions 11, 20, 27, 34, and 50.

Responsiveness to diverse populations assesses the institution's commitment to specific groups of students enrolled at the institution (e.g., under-represented populations, students with disabilities, commuters, part-time students, and older, returning learners). This scale consists of items that include these topics: part-time, evening commuter and adult students and students who are under-represented or have a disability. This scale includes questions 84, 85, 86, 87, 88, and 89.

Safety and security measures the institution's responsiveness to students' personal safety and security on campus. This scale consists of items that include these topics: students' feelings of safety and security on campus, security staff responsiveness, and parking availability. This scale includes questions 7, 21, 28, and 36.

Service excellence measures the areas of campus where quality service and personal concern for students are rated most and least favorably. This scale consists of items that include these

topics: attitudes and availability of library, health services, counseling and registration staff, and the capacity of students to be aware of activities on campus and have opportunities to provide feedback pertaining to services or issues on campus. This scale includes questions 2, 13, 15, 22, 27, 57, 60, and 71.

Student centeredness measures the institution's attitude toward students and the extent to which they feel welcome and valued. This scale consists of items that include these topics: students' feelings of welcome and belonging, their treatment as individuals and the extent to which administrators and staff are caring and helpful. This scale includes questions1, 2, 10, 29, 45, and 59.

(Please refer to the Student Satisfaction Inventory in Appendix B to find all of the questions referenced to above for each scale.)

For the purposes of this study, nine of the twelve categories were analyzed. These areas are: academic advising effectiveness, campus climate, concern for the individual, instructional effectiveness, recruitment and financial aid effectiveness, service excellence, student centeredness, campus support services, and campus life. Each category was selected or not selected for a specific reason. Academic advising effectiveness was selected because as the researcher and an advisor at Iowa State, I am interested in obtaining feedback in this area. In addition, satisfaction with academic advising, student support services, curricular offerings, and opportunities for involvement, all have a positive effect on retention (Lyons & others, 1983).

Campus climate was selected because the literature review suggested that national merit scholars often select a school based on its reputation (Maryland State Board for Higher

Education, 1985). This could translate to one's ability to have pride in an institution. In addition, students who manifest high attachment (campus pride) to their university and have an average GPA are at the lowest risk of withdrawing from college (Krotseng, 1991).

Concern for the individual, service excellence and student centeredness were all selected because of the individual attention that the Office of Special Recruitment gives to national merit students during the recruitment process. As the researcher, I would like to know if students feel that this special attention continues once actually attending Iowa State. When a student's initial expectations are unmet once attending college, dissatisfaction with the institution will most likely be the result (Widdows & Hilton, 1990).

Campus support services was chosen as an area to be examined because according to literature cited in this study, college campuses that have proven successful at increasing retention rates have the following available to all students: supportive campus climate, adequate academic support service, and general student support services (Ottinger, 1991). Increased student retention rates may also imply increased students satisfaction.

Instructional effectiveness was selected because high ability students have been found to have higher expectations of faculty and classroom instruction then low ability students (Kennedy, Gordon, & Gordon, 1995). Teacher effectiveness is also a contributing factor with regard to retention (Ramirez, 1983).

Recruitment and financial aid effectiveness were included to provide specific feedback to the office that recruits national merit students and to determine how their full tuition, room and board scholarship package may affect students' satisfaction in this area. The literature review also included a study that suggested high ability students' college choices are influenced by net attendance costs (Weiler, 1996). A conflicting study reported that school

reputation and status have a more significant impact than a full tuition, room and board package for a majority of students (Maryland State Board for Higher Education, 1985).

Campus life was relevant to this study as pointed out in the literature review. The level of involvement of students can influence their satisfaction at an institution (Keagan, 1978) and high ability students tend to be more involved than average or low ability students (Friedlander, 1980). Significant differences in satisfaction levels are also found to be relevant to one's living situation (Pennington, Zvonkovic, & Wilson, 1989). The nine categories listed above were compared to a national comparison group and a subset of the Iowa State population that consisted of engineering students.

Registration effectiveness was not selected because all national merit students have priority registration and are able to register before most non-national merit students. This advantage might bias this category. Responsiveness to diverse populations was also not selected because of the small minority and international undergraduate population at Iowa State. Safety and Security was not chosen because of the comparatively low crime rate on campus and throughout the city of Ames.

The SSI consists of over 70 questions that cover a broad range of college experiences. Each item is expressed as a statement of expectation and satisfaction. Students are seen as individuals who have definite expectations about what they want from their campus experience. Each statement includes a rating scale of 1 to 7. Students were asked to rate the level of importance they assign to the expectation as well as their level of satisfaction that the expectation is being met. For the purposes of this study college satisfaction was determined based on the results of the comparisons that were made. The collection and analysis of this

information in essence provides a blueprint for improving Iowa State University's effectiveness as determined by the national merit students.

The inventory findings are presented with three scores for each item: an importance score (expectations), a satisfaction score, and a performance gap score (disparity). The disparity score is calculated by subtracting the satisfaction score from the importance score. A high positive performance gap score (e.g., 1.5 out of a theoretical difference of 6, 7-1) indicated that the institution is not meeting the students' expectation for that item. A zero or low positive gap score (e.g., .50 out of a theoretical difference of 6, 7-1) indicated that the institution is meeting the expectation; and a negative gap score indicated that the institution is exceeding the student's expectation.

The researcher had access to each student's university identification number, which allowed additional demographic data to be collected for those students who returned a survey. The SSI also allows space for adding additional items of the researchers choosing. The additional questions can be found in Appendix D and included references to:

74) learning communities

75) the honors program

76) cooperative learning

77) the Office of Special Recruitment

78) an overall satisfaction response

The first three additional questions are of special interest to the researcher. Literature also supports the first three questions. Students who are more involved in campus life tend to be more satisfied (Keagan, 1978) and students who are encouraged to work as groups are also more satisfied with the college experience (House, 1998). Learning communities, the

honors program, and cooperative learning all encourage student involvement and group activities. Iowa State strongly supports and emphasizes involvement in learning communities and the Office of Special Recruitment strongly encourages national merit students to become involved with the honors program. As the researcher, I chose to share a copy of the completed study with the Office of Special Recruitment so I felt question # 77 would be of interest to their staff. The final additional question made it possible for student participants to make a general assessment of the university that could be used by the researcher when discussing conclusions.

Internal Validity

"The internal validity of an experiment according to Borg & Gall (1989) is the extent to which extraneous variables have been controlled by the researcher" (p. 642).

There are two threats to internal validity in this study. One is differential selection or self-selection. The students who chose to return a survey may have chosen to do so because they had strong feelings about Iowa State University (either positive or negative). An additional threat would be selection-maturation interaction. Survey respondents included freshman through seniors. Survey results may vary based on the maturity level of these students. I chose not to investigate this area further but have included this in my suggestions for further research.

Tentative Presuppositions

1) The study assumed the survey respondents were honest and thoughtful in their responses.
2) The study assumed the respondents understood and interpreted questions accurately.
3) The study assumed the survey instrument adequately measured student satisfaction and importance at Iowa State based on the reliability and validity of the instrument, which is discussed below.

Instrument Reliability and Validity

The four-year college version of the SSI reports exceptionally high internal reliability (Noel-Levitz, 1999). Cronbach's coefficient alpha is .97 for the set of importance scores and is .98 for the set of satisfaction scores. The SSI also demonstrates good score reliability over time; the three-week, test-retest reliability coefficient is .85 for importance scores and .84 for satisfaction scores.

There is also evidence to support the validity of the SSI. Convergent validity was assessed by correlating satisfaction scores from the SSI with satisfaction scores from the College Student Satisfaction Questionnaire (CSSQ), another statistically reliable satisfaction instrument (Noel-Levitz, 1999). The Pearson correlation between these two instruments ($r=0.71$; $p<0.00001$) is high enough to indicate that the SSI's satisfaction scores measure the same satisfaction construct as the CSSQ's scores, and yet the correlation is low enough to indicate that there are distinct differences between the two instruments.

Data Collection

The Noel-Levitz Student Satisfaction Inventory was sent through U.S. mail to the intended population. The survey was accompanied by a cover letter (please refer to Appendix E) that explained to the recipient the main purpose of the study, which was to provide the students a means to express their opinions and assess the opportunities this university has provided them.

To help ensure an adequate response rate, I asked the Director of the Special Recruitment Program to co-sign the cover letters. The cover letters included a statement of confidentiality ensuring that the student's identity would remain anonymous. Instructions were also enclosed along with the cover letters to explain returning procedures, the estimated time the survey would take to complete, and my name and e-mail address (for further questions). An identifier was placed on the first page of each survey for the purposes of sending a follow-up letter as well as to collect additional demographic data through the Registrar's Office at Iowa State University. (Please refer to Appendix F for copies of all approval forms). A follow-up letter (please refer to Appendix G) was sent after 2 weeks to all those surveyed who had not yet responded. Surveys were distributed on April 3, 2000. The follow-up letters were sent on April 17, 2000. Students who are interested in the results of the survey were told to contact me to obtain a summary of the results.

Hypotheses

The results and conclusions of this study will be derived from statistical analysis of student response to the SSI instrument. It is therefore necessary to formulate each research

question into an appropriate structure that will enable a determination of statistical significance.

For the two research questions pertaining to satisfaction, comparable hypotheses were established for each of the nine scales (academic advising effectiveness, campus climate, concern for the individual, instructional effectiveness, recruitment and financial aid effectiveness, service excellence, student centeredness, campus support services, and campus life). The directional and alternative hypotheses listed are one example (academic advising effectiveness) of the nine hypotheses associated with each question.

Research Question I

Are national merit students at Iowa State University satisfied with their college experience when compared to students in the national comparison group?

Null hypothesis: National merit students as Iowa State University will have a satisfaction mean score for academic advising effectiveness that is equal to the national comparison group.

Alternative hypothesis: National merit students at Iowa State University will have a satisfaction mean score for academic advising effectiveness that is not equal to the national comparison group.

Research Question II

Are Iowa State University national merit engineering students satisfied with their college experience when compared with non-national merit Iowa State University engineering students?

Null hypothesis: National merit engineering students at Iowa State University will have a satisfaction mean score for academic advising effectiveness that is equal to non-national merit engineering students at Iowa State University.

Alternative hypothesis: National merit engineering students at Iowa State University will have a satisfaction mean score for academic advising effectiveness that is not equal to the non-national merit engineering students at Iowa State University.

Research Question III

Do Iowa State University national merit students and students included in the national comparison group find the same aspects of college life important?

Null hypothesis: National merit students as Iowa State University will have importance mean scores that are equal to the national comparison group.

Alternative hypothesis: National merit students at Iowa State University will have importance mean scores that are not equal to the national comparison group.

Research Question IV

Do Iowa State University non-national merit engineering students and Iowa State national merit engineering students find the same aspects of college life important?

Null hypothesis: National merit engineering students at Iowa State University will have importance mean scores that are equal to non-national merit engineering students at Iowa State University.

Alternative hypothesis: National merit engineering students at Iowa State University will have importance mean scores that are not equal to non-national merit engineering students at Iowa State University.

Data Analysis

This study used quantitative methods of analysis. The type of data collected were interval and a stratified random sample was used. In stratified random sampling, the population is divided into sub-populations called strata. All strata are represented in the population. The means of the satisfaction and importance scores and standard deviations of the satisfaction scores produced by the survey (college satisfaction, expectations, and disparity) were examined.

In order to determine sample reliability a Chi-Square test was performed. The analyses used to determine the outcome of the hypotheses for research questions #1 and #2 were a Median test and a Mann-Whitney U test. These particular tests were used because the overall differences or similarities regarding importance between the comparison groups could be determined, whereas the differences per individual scale were not of interest. The analysis used to determine the outcome of the hypotheses for research questions #3 and #4 was an independent t test to determine whether satisfaction means were significantly different from each other.

T-test Assumptions

1) This study assumes that the samples being compared are independent.

The assumption of independent samples when two samples are being compared means that the scores of one sample do not influence the scores of the other sample or are unrelated. In this study, stratified random samples are employed from each of the four populations and the appropriate measurements are taken. Each of the four samples is a random representation of the total populations so inferences can be made about each population from the samples.

2) This study does not assume homogeneity of variance.

Homogeneity of variance assumes that the variance for population 1 is equal to the variance for population 2 and therefore the pooled estimate can be used. A pooled estimate is when a sample of subjects is selected from a single population and then randomly assigned to two treatment groups. If the two samples are of equal size, i.e., $n_1 = n_2$, then the assumption of homogeneity can be made. If $n_1 \neq n_2$, an alternative procedure is used in testing the null hypothesis, called the separate variance t-test.

The SSI offers national comparisons with like-type institutions so in this particular case, Iowa State University was compared to national norms for four-year public institutions. The College of Engineering at Iowa State University administered the SSI in 1996 to its students. Forty-two and one-half (42.5) percent of the national merit students who returned a survey were engineering majors. Therefore results from this study were compared to the 1996 study after identifying the national merit students who took this survey in 1996 and removing them from the list. This procedure allowed me to compare the national merit population at

Iowa State to the non-national merit population at Iowa State to the extent that the comparison only included engineering majors.

CHAPTER IV. RESULTS

Introduction

This chapter provides and summarizes results concerning the satisfaction of national merit scholars at Iowa State University. The chapter begins by providing descriptive statistics of the sample populations as well as a discussion of sample reliability. Each of the four research questions is addressed and the appropriate statistical tests are presented and discussed. The disparity level for each of nine scales is reported and results from three summary items included at the end of the SSI are summarized as well as the campus items I included.

Description of ISU National Merit Sample

The Student Satisfaction Inventory (SSI) was sent to a total of 465 national merit students. Out of this group of students, 207 returned a completed survey, resulting in a 44.5% return rate (please refer to Table 2 for all descriptive data). Of the students who returned a survey, 125 were males and 82 were females (60.4% male and 39.6% female). This is comparable to the total population of national merit students, which consisted of 313 males (67.3%) and 152 females (32.7%).

Each college at Iowa State University is represented in the population and the sample of national merit students. The College of Engineering and the College of Liberal Arts and Sciences have the most national merit students enrolled with 202 (43.4%) in engineering and 185 (39.8%) in liberal arts and sciences for a total of 83.2% of the population. The College of Engineering was selected as an additional category to use as a comparison because it enrolled

Table 2. Descriptive statistics of ISU national merit scholars

		National Merit Students (%)	Returned Surveys (%)	NM Engineers Returned (%)
Total # of Students		465	207(44.5)	88(42.5)
Gender				
	Male	313(67.3)	125(60.4)	66(75)
	Female	152(32.7)	82(39.6)	22(25)
College				
	Agriculture	25(5.4)	13(6.3)	NA
	Business	23(5.0)	9(4.4)	NA
	Design	18(3.9)	11(5.3)	NA
	Education	5(1.2)	3(1.5)	NA
	Engineering	202(43.4)	88(42.5)	88(42.5)
	Family and Consumer Science	5(1.2)	1(0.48)	NA
	Liberal Arts and Sciences	187(40.2)	82(39.6)	NA
In/Out of State				
	In State	218(46.9)	88(42.5)	31(35.2)
	Out of State	247(53.1)	119(57.5)	57(64.8)
Year in School				
	Freshman	60(12.9)	31(15)	12(13.6)
	Sophomore	85(18.3)	42(20.3)	19(21.6)
	Junior	101(21.7)	49(23.7)	22(25)
	Senior	219(47.1)	85(41.1)	33(37.5)

the most national merit students and also included the most survey respondents.

A total of 88 engineering students returned the SSI as compared with 82 liberal arts and sciences majors. The 88 national merit engineering students who returned a survey were compared to a group of non-national merit engineering students who completed the SSI in 1996. Descriptive statistics also show that more national merit students are out-of-state than in-state. The majority of national merit students were upper class students with 208 (44.7%) seniors and 101 (21.7%) juniors

Sample Representativeness

In order to determine if the sample of survey respondents was representative of the population of national merit students surveyed, a chi-square test was run on each of the four descriptive categories listed in Table 2. The formula used to compare observed frequencies with theoretical or expected frequencies is:

$$\chi^2 = \sum_{i=1}^{K} \frac{(O-E)^2}{E}$$

The results are displayed in Tables 3-6.

Table 3. Chi-square tests for gender descriptive data

	Observed(O)	Expected(E)	(O - E)		$(O-E)^2$
$(O-E)^2 / E$					
Male	60.4	67.3	-6.9	47.61	0.7074
Female	39.6	32.7	6.9	47.61	0.7074
Total	100	100	0.0	XX	$1.4149 = \chi^2$

Note: $\alpha = 0.05$, df = 1, $\chi^2_{cv} = 3.841$

Table 4. Chi-square tests for residency descriptive data

	Observed(O)	Expected(E)	(O - E)	$(O-E)^2$	$(O-E)^2 / E$
In-State	42.5	46.9	-4.4	19.36	0.4128
Out of State	57.5	53.1	4.4	19.36	0.3646
Total	100	100	0.0	XX	$0.7774 = \chi^2$

Note: $\alpha = 0.05$, df = 1, $\chi^2_{cv} = 3.841$

Table 5. Chi-square tests for college descriptive data

	Observed(O)	Expected(E)	(O - E)	$(O-E)^2$	$(O-E)^2 / E$
Agriculture	6.3	5.4	0.90	0.81	0.15
Business	4.4	5.0	0.60	0.36	0.072
Design	5.3	3.9	1.40	1.96	0.503
Education	1.5	1.2	0.30	0.09	0.075
Engineering	42.5	43.4	-0.90	0.81	0.019
Family and Consumer Science	0.48	1.2	-0.72	0.518	0.432
Liberal Arts and Science	39.6	40.2	-0.60	0.36	0.009
Total	100	100	-2.20	XX	$1.26 = \chi^2$

Note: $\alpha = 0.05$, df = 6, $\chi^2_{cv} = 12.592$

Table 6. Chi-square tests for year in school descriptive data

	Observed(O)	Expected(E)	(O - E)	$(O-E)^2$	$(O-E)^2 / E$
Freshman	15	12.9	2.10	4.41	0.342
Sophomore	20.3	18.3	2.00	4.0	0.219
Junior	23.7	21.7	2.00	4.0	0.184
Senior	41.1	47.1	-6.00	36.0	0.764
Total	100	100	0.10	XX	$1.509 = \chi^2$

Note: $\alpha = 0.05$, df = 3, $\chi^2_{cv} = 7.815$

The observed frequencies (surveys returned) are compared to the theoretical or expected frequencies, which are based on the total population of national merit students at Iowa State. The four categories tested include gender, college, in-state versus out-of-state, and year in school. The null hypothesis stated that the sample means and the population means would be equal and the alternative hypothesis stated that the sample means and the population means would not be equal. For each of the four categories, the null hypothesis was accepted and it was determined that there was not a significance difference between the two groups.

The difference between observed and expected frequencies are attributable to chance fluctuation. As an example, the response rate for men (60.4%) was higher than for women (39.6%) but there was not a significant difference between the percentage of men and women that completed the survey and the total population of national merit men and women. The percentage of men and women that returned the survey are a good representation of the total national merit population, $\chi^2(1, \underline{N}=207)=1.4149$, $\underline{p}<0.05$. Please refer to Tables 3-6 to find the results of the remaining three categories. It can be concluded from this information that the 44.5% of survey respondents are indeed a good sample representation of the total population of national merit students at Iowa State.

The SSI data were received in two forms. Noel Levitz provided a written report from which the satisfaction mean, satisfaction standard deviation, and importance mean were reported for the 207 national merit respondents as well as the comparison group (public 4-year institutions). The remaining data were received as text-based data that were imported into Excel. Considerable time and effort was required to sort, separate, and compile the remainder of the information reported in Table 7. The third column is data from the College

Table 7. Measures of central tendency for four comparison groups on nine scales

	Comparison Group (192,306)	ISU NMerit Respondents (207)	ISU non-NM Engineers (800)	ISU NMerit Engineers (65)
Academic Advising				
Satisfaction Mode	*na	6	6	6
Satisfaction Median	*na	6	5	6
Satisfaction Count	*na	1017	3634	321
Satisfaction Mean	5.05	5.39	5.08	5.43
Satisfaction Std.Dev.	1.34	1.19	1.39	1.51
Importance Mean	6.31	6.02	6.09	6.02
Campus Climate				
Satisfaction Mode	*na	6	6	6
Satisfaction Median	*na	5	5	6
Satisfaction Count	*na	3395	13132	1066
Satisfaction Mean	4.85	5.04	5.17	5.17
Satisfaction Std. Dev.	1.01	0.84	1.29	1.46
Importance Mean	6.05	5.84	5.90	5.76
Campus Life				
Satisfaction Mode	*na	6	6	6
Satisfaction Median	*na	5	5	5
Satisfaction Count	*na	2794	10871	896
Satisfaction Mean	4.66	4.97	5.14	5.01
Satisfaction Std. Dev.	0.97	0.76	1.31	1.42
Importance Mean	5.58	5.26	5.63	5.23
Campus Support Services				
Satisfaction Mode	*na	6	6	6
Satisfaction Median	*na	5	5	6
Satisfaction Count	*na	1228	4975	400
Satisfaction Mean	4.97	5.19	5.23	5.37
Satisfaction Std. Dev.	1.00	0.76	1.30	1.13
Importance Mean	6.04	5.27	5.90	5.28
Concern for the Individual				
Satisfaction Mode	*na	6	6	6
Satisfaction Median	*na	5	5	5
Satisfaction Count	*na	1146	4383	360
Satisfaction Mean	4.73	4.91	4.88	5.04
Satisfaction Std. Dev.	1.10	0.87	1.29	1.34
Importance Mean	6.06	5.86	5.91	5.76

Table 7. (continued)

	Comparison Group (192,306)	ISU NMerit Respondents (207)	ISU non-NM Engineers (800)	ISU NMerit Engineers (65)
Instructional Effectiveness				
Satisfaction Mode	*na	6	6	6
Satisfaction Median	*na	5	5	6
Satisfaction Count	*na	2849	10871	899
Satisfaction Mean	5.05	5.21	5.12	5.33
Satisfaction Std. Dev.	0.98	0.76	1.32	1.24
Importance Mean	6.31	6.26	6.16	6.22
Recruitment & Financial Aid				
Satisfaction Mode	*na	6	6	6
Satisfaction Median	*na	6	5	6
Satisfaction Count	*na	1090	4197	344
Satisfaction Mean	4.57	5.26	4.84	5.28
Satisfaction Std. Dev.	1.14	0.85	1.36	1.24
Importance Mean	6.01	5.59	5.85	5.39
Service Excellence				
Satisfaction Mode	*na	6	6	6
Satisfaction Median	*na	5	5	5
Satisfaction Count	*na	1459	5601	458
Satisfaction Mean	4.68	4.85	4.97	4.91
Satisfaction Std. Dev.	1.01	0.82	1.29	1.38
Importance Mean	5.99	5.56	5.83	5.40
Student Centeredness				
Satisfaction Mode	*na	6	6	6
Satisfaction Median	*na	5	5	6
Satisfaction Count	*na	1219	4692	383
Satisfaction Mean	4.88	5.03	5.19	5.25
Satisfaction Std. Dev.	1.12	0.96	1.24	1.44
Importance Mean	6.02	5.91	5.95	5.84

*Note: Satisfaction mode, median and count were not available (na) for the national comparison group.

of Engineering, which administered this same survey in the fall semester of 1996. It is important to note that all 71 national merit students who participated in the 1996 survey were removed before conducting any statistical analysis, so that independent comparisons could be made between non-national merit engineers and national merit engineers. The fourth column is a subset of column #2, which consists of identifiable engineering national merit students (n = 65) who responded to the survey. The SSI data, as well as the data for the engineering students comparison group were calculated using the same methods.

There are three types of data response by students: data within the 1-7 range, data that is zero, and data that is missing. Means are calculated based only on the first group. Zero is not considered a valid response and is not used in calculating the total number of responses. On the importance scale zero refers to "does not apply" and on the satisfaction scale zero refers to "not available, not used". When calculating the nine scales, all valid responses within the scale are divided by the number of responses that equal the scale score. It is NOT the average of the averages.

Results Pertaining to the Research Questions

Satisfaction

The first and second research questions relating to satisfaction are addressed in this section. These questions are as follows:

Research Question I

Are national merit students at Iowa State University satisfied with their college experience when compared to students in the national comparison group?

Research Question II

Are Iowa State University national merit engineering students satisfied with their college experience when compared with non-national merit Iowa State University engineering students?

In order to analyze the first and second research questions, two comparisons were made. The first compares means of the independent samples collected from students in the national comparison group against means of the Iowa State national merit student survey respondents. The second is a comparison between current national merit engineering students at Iowa State and non-national merit engineering students at Iowa State in 1996.

In order to answer these questions, a statistical procedure is used that is explained and illustrated with a sample calculation. The sample calculation illustrated below compares the mean satisfaction scores of Iowa State national merit engineering students with the mean satisfaction scores of Iowa State non-national merit engineering students for the academic advising effectiveness scale. A total of eight additional scales were analyzed, as discussed in chapter three, for this comparison group. The same nine scales were analyzed for the second comparison group of engineering students and results from all eighteen tests appear in Table 8.

***Test Procedures*:**

The example that follows involves a test or comparison of two means for independent samples.

Testing $\mu_1 = \mu_2$ for independent samples when $\sigma_1 \neq \sigma_2$

Table 8. Summary table of computed t-test values of mean differences and level of significance

Scale	National Comparison Group versus ISU National Merits	ISU Engineers versus ISU National Merit Engineers
Academic Advising	9.140***	4.024**
Campus Climate	9.282**	-0.003 ns
Campus Life	27.338***	-2.652*
Campus Support Services	10.899**	2.237*
Concern for the Individual	7.229*	(p)2.276*
Instructional Effectiveness	11.189*	(p)4.564**
Recruitment & Financial Aid	28.279***	(p)5.820**
Service Excellence	8.333*	-0.902 ns
Student Centeredness	5.475 ns	0.755 ns

Note: * p<0.05 or significant, **p<0.01 or highly significant, ***p<0.001 or very highly significant, ns = not significant. The greater the number of asterisks, the greater the confidence in the significance of this difference and the greater the likelihood that this did not occur by chance. Statistical significance at the 0.05 level indicates that there are five chances in 100 that the difference between Iowa State University's satisfaction score and the national comparison group satisfactions score would occur due to chance alone. The 0.01 level indicates a one in 100 chance and the 0.001 level indicates a one in 1,000 chance.
(p)=equal variances are assumed.

Considering that the size of the two samples is quite different it is important to check for the assumption of homogeneity of variance.

Step 1: The test for the assumption of homogeneity of variance.

This tests the null hypothesis H_o: $\sigma_1 = \sigma_2$; i.e., that the variance in the populations from which the samples were selected are equal. This is equivalent to hypothesizing that the ratio of the variance equals 1.00. This can be written as follows.

Test the null hypothesis:

$$H_o: \sigma_1 = \sigma_2 \quad \text{or} \quad H_o: \frac{\sigma^2_1}{\sigma^2_2} = 1$$

Against the nondirectional alternative hypothesis:

$$H_A: \sigma_1 \neq \sigma_2 \quad \text{or} \quad H_A: \frac{\sigma^2_1}{\sigma^2_2} \neq 1$$

The corresponding test statistic, called the F ratio, is the ratio of the two sample variances, i.e.,

$$F = \frac{s^2_1}{s^2_1}$$

To identify the specific **F** distribution, it is necessary to determine the degrees of freedom associated with the sample variance in the numerator of the **F** ratio (n_1) and the degrees of freedom associated with the sample variance in the denominator (n_2). The larger sample variance is placed in the numerator so that the ratio will always be greater than 1.0.

If the observed value of the test statistic is less than the critical value, the null hypothesis can be accepted and it is concluded that the variances are homogenous. A pooled estimate of variance approach can then be used to solve for the test statistic (t). This method was used in 3 of the 18 comparisons performed and is noted in Table 8.

If the observed value of the test statistic exceeds the critical value, the null hypothesis is rejected, and therefore it is concluded that the assumption of homogeneity of variance is not tenable. When the assumption of homogeneity of variance is rejected, an alternative procedure for testing H_o: $\sigma_1 = \sigma_2$ is used. Rather than using the pooled estimate of the population variance, the equation below is used to determine the estimated standard error.

Step 2: Determination of the estimated standard error.

$$s_{\bar{X}_1 - \bar{X}_2} = \sqrt{\frac{s^2_1}{n_1} = \frac{s^2_2}{n_2}}$$

Step 3: Determine the degrees of freedom

The degrees of freedom are computed using the following formula

$$\mathrm{df} = \frac{(s^2{}_1 / n_1 + s^2{}_2 / n_2)^2}{(s^2{}_1 / n_1)^2 / (n_1 - 1) + (s^2{}_2 / n_2)^2 / (n_2 - 1)}$$

Step 4: Calculate the test statistic

Next the test statistic is computed using the formula presented below along with the standard error of the difference computed above.

$$\mathrm{t} = \frac{(\overline{X}_1 - \overline{X}_2) - (\mu_1 - \mu_2)}{s_{\overline{X}_1 - \overline{X}_2}}$$

Step 5: Accept or reject the null hypothesis

From this t-value it is determined whether the test statistic (t) exceeds the critical value. Thus, the null hypothesis is either accepted or rejected.

Sample Calculations

The subset of questions that deal with academic advising effectiveness (#6,14,19,33 and 55) are used to illustrate and explain this process. Sample calculations are presented below to show, in considerable detail, how each comparison of the mean was made. Two solution procedures were used, both a manual calculation and calculations done through SPSS software. Manual calculations were necessary given that only computed statistics were available on the national comparison group, not the raw data.

Step 1: State the hypothesis:

Null hypothesis: National merit engineering students at Iowa State University will have a satisfaction mean score for academic advising effectiveness that is equal to non-national merit engineering students at Iowa State University.

Alternative hypothesis: National merit engineering students at Iowa State University will have a satisfaction mean score for academic advising effectiveness that is not equal to the non-national merit engineering students at Iowa State University.

$$H_o: \mu_1 = \mu_2$$

$$H_A: \mu_1 \neq \mu_2$$

Homogeneity of variance must be determined before the hypothesis can be tested,

$$H_o: \sigma_1 = \sigma_2 \quad \text{or} \quad H_o: \frac{\sigma^2_1}{\sigma^2_2} = 1$$

against the non-directional alternative hypothesis:

$$H_A: \sigma_1 \neq \sigma_2 \quad \text{or} \quad H_A: \frac{\sigma^2_1}{\sigma^2_2} \neq 1$$

The **F** ratio is utilized for this test

$$F = \frac{s^2_1}{s^2_1} = \frac{1.5069^2}{1.3905^2} = \frac{2.2707}{1.9335} = 1.1744$$

This test statistic is compared to the critical value obtained from an F-distribution table (Table C.5 in Hinkle, Wiersma, & Jurs, 1998).

$$\mathbf{F} = 1.14$$

Since F = 1.1744 > 1.14 the null hypothesis is rejected and it is concluded that $\sigma^2_1 \neq \sigma^2_2$.

Since homogeneity of variance is not tenable, a separate (not pooled) procedure is used to test for $H_o: \mu_1 = \mu_2$.

Step 2: Set the criteria for rejecting H_o ($\alpha = 0.05$) and determine the estimated standard error.

$$s_{\bar{X}_1-\bar{X}_2} = \sqrt{\frac{s^2_1}{n_1}+\frac{s^2_2}{n_2}} = \left[\frac{2.2707}{321}+\frac{1.9335}{3634}\right]^{0.5} = 0.0872$$

Step 3: Calculate the degrees of freedom

$$df = \frac{(s^2_1/n_1 + s^2_2/n_2)^2}{(s^2_1/n_1)^2/(n_1-1)+(s^2_2/n_2)^2/(n_2-1)} = \frac{(2.2707/321+1.9335/3634)^2}{\left[\frac{(2.2707/321)^2}{320}\right]+\left[\frac{(1.9335/3634)^2}{3633}\right]}$$

so, df = 369.764

Using a table of critical values or the t-distribution (Table C.5 in Hinkle, Wiersma, & Jurs, 1998) $\alpha = 0.05$, df = ∞, 2 tail-test, t(critical value) = $\pm$ 1.96

Step 4: Compute the test statistic

$$t = \frac{(\bar{X}_1-\bar{X}_2)-(\mu_1-\mu_2)}{s_{\bar{X}_1-\bar{X}_2}} = \frac{5.4299-5.0790}{0.0872} = 4.0241$$

*Note: Although these example values were manually calculated, the end results were identical to the results concluded with the values computed in SPSS for non-national merit engineers and national merit engineers. The SPSS printout is included in Appendix H.

Step 5: Interpret the results

Since the observed value of t (4.0241) exceeds the critical value (1.96) in absolute value, the null hypothesis is rejected. Thus, H_A: $\mu_1 \neq \mu_2$ is accepted.

The example procedure illustrated above is a hand calculation to confirm the procedure and results provided by SPSS analysis. (See Appendix H) When completed for each of the remaining eight scales, the data is provided and summarized in the third column of Table 8.

The second column of Table 8 reports the results from this same procedure, however, hand calculations were required because the raw data were not available for the national comparison group.

Importance

The third and fourth research questions relating to Importance are addressed in this section. These questions are as follows:

Research Question III

Do Iowa State University national merit students and students included in the national comparison group find the same aspects of college life important?

Research Question IV

Do Iowa State University non-national merit engineering students and Iowa State national merit engineering students find the same aspects of college life important?

In order to answer these questions, a Median test and a Mann-Whitney U test were performed. The values used in these tests are from Table 7, Importance means. A Median test determines if two samples have been selected from populations with the same or a common median (Hinkle, Wiersma, & Jurs, 1998). A Mann-Whitney U test was also performed as a further way to validate results of the Median test. This test determines if two population distributions are the same for a specified variable. It takes into consideration the central tendency and total distribution of scores from both groups and is a statistically more powerful test than the Median test.

To examine the first research question pertaining to Iowa State national merit students and the national comparison group, the Median test follows these steps:

Step 1: Construct a table

Show the score and rank for each of the two groups where the sum of the ranks and the overall median score may be computed. (See Table 9.)

Table 9. Median and Mann Whitney U-tests for comparing importance scores between the national comparison group and ISU national merit students

National Comparison		ISU National Merit	
Score	Rank	Score	Rank
5.58	4	5.26	1
5.99	9	5.27	2
6.01	10	5.56	3
6.02	12	5.59	5
6.04	13	5.84	6
6.05	14	5.86	7
6.06	15	5.91	8
6.31	17	6.02	11
6.31	18	6.26	16
ΣRanks=	112	ΣRanks=	59

* Note the overall median score is 6.00

Step 2: State the Hypotheses.

Null hypothesis: National merit students as Iowa State University will have importance mean scores that are equal to the national comparison group.

Alternative hypothesis: National merit students at Iowa State University will have importance mean scores that are not equal to the national comparison group.

$$Ho: Mdn1 = Mdn2 \text{ and } Ha: Mdn1 \neq Mdn2$$

Step 3: Set the criterion for rejecting Ho.

A 2X2 contingency table is developed from the data in Table 9 and a common median is determined. Data can now be categorized based on whether it falls above or below the median. With a 2x2 contingency table the degrees of freedom are 1. Therefore assuming a .05 significance level, the critical value of χ^2 is 3.841.

Step 4: Compute the test statistic

Using the formula: $$\chi^2 = \frac{n(AD - BC)^2}{(A+B)(C+D)(A+C)(B+D)}$$

it is determined that $\chi^2 = 5.5556$

Step 5: Interpret the results:

The test statistic of 5.56 exceeds the critical value of 3.841 so the null hypothesis is rejected. The conclusion is that there is a significant difference in attitude of importance between students in the national comparison group and Iowa State national merit students.

To further validate this finding a Mann-Whitney U test is performed comparing the students in the national comparison group to Iowa State national merit students.

Step 1: State the Hypothesis

Null hypothesis: National merit students as Iowa State University will have importance mean scores that are equal to the national comparison group.

Alternative hypothesis: National merit students at Iowa State University will have importance mean scores that are not equal to the national comparison group.

Ho: Attitude1 = Attitude2 and Ha: Attitude 1 ≠ Attitude2.

Step 2: Set the criterion for rejecting Ho.

The sampling distribution of U for n1 = 9 and n2 = 9 is used to test the null hypothesis. At the 0.05 level for a two-tailed test, the critical value is 18.

Step 3: Compute the test statistic

U_1 and U_2 can be computed once ranks are assigned to the scores for the combined group. The calculation of the U statistic takes into consideration the central tendency as well as the total distribution of scores for both groups (see Table 9), and is defined as the smaller of U_1 and U_2.

$$U_1 = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1$$

$$U_2 = n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2$$

where

n_1 = number of observations in group 1
n_2 = number of observations in group 2
R_1 = sum of the ranks assigned to group 1
R_2 = sum of the ranks assigned to group 2.

In this test $U_1 = 14$ and $U_2 = 67$ so the observed value of U_1, which is the smaller of the two U values, will be compared to the critical value of 18.

Step 4: Interpret the results:

Since the observed value of U_1 is less than the critical value of 18, the null hypothesis is rejected. The conclusion is that there is a significant difference in the importance scores of

students at four-year public institutions nationally and Iowa State national merit students.

To answer research question II, the Median test and Mann-Whitney U test were performed using the same statistical procedures described above. The hypotheses and an interpretation of the results follow.

Null hypothesis: National merit engineering students at Iowa State University will have importance mean scores that are equal to non-national merit engineering students at Iowa State University.

Alternative hypothesis: National merit engineering students at Iowa State University will have importance mean scores that are not equal to non-national merit engineering students at Iowa State University.

As a result of the Median test the test statistic is calculated to be 5.56 which does exceed the critical value of 3.841 so the null hypothesis is rejected. The conclusion is that there is a significant difference in attitude of importance between Iowa State national merit engineering student and Iowa State non-national merit engineering students.

In a Mann-Whitney U test, the criterion for rejecting Ho is defined as the smaller of U_1 and U_2. In this test $U_1 = 20$ and $U_2 = 61$ so the observed value of U_1 will be compared to the critical value of 18. Since the observed value of U_1 is more than the critical value of 18, the null hypothesis is accepted. The conclusion is that there is not a significant difference in the importance scores of Iowa State national merit engineering students and Iowa State non-national merit engineering students. Please refer to Table 10 for tabulated results.

The results of the above two tests lead to different conclusions. For the purposes of this study I will be using the results of the Mann-Whitney U test to draw conclusions. In the Median test, the test statistic was sensitive only to the differences between the medians and did not take into consideration the total distribution of scores for the two groups. In contrast, the Mann-Whitney U test was sensitive to both the central tendency of the scores and the distribution of scores. It is a statistically more powerful test than the Median test.

Table 10. Median and Mann Whitney U-tests for comparing importance scores between non-national merit ISU engineering students and ISU national merit engineering students

Non-National Merit Engineers		ISU National Merit Engineers	
Score	Rank	Score	Rank
5.63	5	5.23	1
5.83	8	5.28	2
5.85	10	5.39	3
5.90	11	5.40	4
5.90	12	5.76	6
5.91	13	5.76	7
5.95	14	5.84	9
6.09	16	6.02	15
6.16	17	6.22	18
ΣRanks=	106	ΣRanks=	65

* Note the overall median score is 5.845

Disparity Levels

The disparity level refers to the mean importance score minus the mean satisfaction score and is calculated for each scale. The disparity level can be viewed as how well the students' expectations are being met with regard to each of the scales. A high positive disparity score (e.g., 1.5 out of a theoretical difference of 6, 7-1) for a scale can indicate that

the students' expectations are not being met. A zero or low positive disparity score (e.g., .50 out of a theoretical difference of 6, 7-1) for a scale can indicate the students' expectations are being met. A negative score indicates the student's expectations have been exceeded. Please refer to Table 11 for a list of the disparity scores for each of the nine scales.

Disparity scores for the national merit students were not part of a comparison group. There is no common basis for comparison when the difference between a set of independent scores is compared to the difference between another set of independent scores.

Table 11. Disparity scores for ISU national merit students on each of the nine scales

Scale	Disparity Score
Instructional Effectiveness	1.05
Concern for the Individual	0.95
Student Centeredness	0.88
Campus Climate	0.80
Service Excellence	0.71
Academic Advising	0.63
Recruitment and Financial Aid	0.33
Campus Life	0.29
Campus Support Services	0.08

Summary Items and Campus Items

The three summary items numbered 99, 100, and 101 in the SSI discuss general student expectations and satisfaction pertaining to Iowa State University (please refer to Appendix I to view the campus report and mean scores). Although statistical analysis was not performed on these three questions, individual mean scores for each question were higher for the group of national merit students at Iowa State than the students included in the national

comparison group. Iowa State national merit engineering students also had higher mean scores for each question than non-national merit engineering students (please refer to Table 12).

I chose to ask five additional questions pertaining to unique aspects of Iowa State University. All five questions can be found in Appendix D. Campus item # 78, which asked students if Iowa State was the best choice they could have made, had the highest importance score (6.24) and highest satisfaction score (5.47) when compared to the other four campus

Table 12. SSI summary item scores for the ISU engineering students comparison group

Comparison Groups	Question #99	Question #100	Question #101
Non-national merit engineering students			
Group Mean	4.35	5.28	5.80
Standard Deviation	1.16	1.28	1.35
National Merit Engineering Students			
Group Mean	4.98	5.89	6.22
Standard Deviation	1.26	1.31	1.27

items (please refer to the campus report in Appendix I). Importance mean scores for the remaining four items are ranked from highest to lowest:

#75 -- the honors program -- 5.62

#77 -- the Office of Special Recruitment -- 5.49

#76 -- cooperative learning -- 4.70

#74 -- learning communities -- 4.55

Satisfaction mean scores for the same four items are ranked from highest to lowest:

#77 -- the Office of Special Recruitment -- 5.27

#75 -- the honors program -- 5.07

#74 -- learning communities -- 4.87

#76 -- cooperative learning -- 4.53

Summary

Out of 465 surveys sent to national merit students at Iowa State University, 207 completed surveys were returned to the researcher, accounting for a 44.5% return rate. A Chi-square test determined that the survey respondents were indeed a good sample representation of the total population of national merit students at Iowa State.

National merit students at Iowa State were more satisfied than the national comparison group in all of the following areas (significance level varied): academic advising effectiveness, campus climate, concern for the individual, instructional effectiveness, recruitment and financial aid effectiveness, service excellence, student centeredness, campus support services and campus life, although student centeredness showed no significant difference. National merit engineering students at Iowa State were more satisfied (significance level varied) than non-national merit engineering students at Iowa State in 6 of the 9 scales analyzed. These six areas included: academic advising effectiveness, campus support services, concern for the individual, instructional effectiveness, recruitment and financial aid, and student centeredness, although student centeredness showed no significant difference. The mean satisfaction scores were equal for the campus climate scale and the mean satisfaction scores for campus life and

service excellence were higher for the non-national merit engineering students than for the national merit engineering students, although service excellence showed no significant difference.

The comparison between national merit engineering students at Iowa State and non-national merit engineering students at Iowa State had more similarities regarding satisfaction than did the other comparison between Iowa State national merit students and students surveyed in the national comparison group.

In order to determine if Iowa State national merit students and students included in the national comparison group find the same aspects of campus life important, a Median test and a Mann-Whitney U-test were performed. These same two tests were also performed to determine if the second comparison group of Iowa State University non-national merit engineering students and Iowa State national merit engineering students found the same aspects of campus life important. The results implied that Iowa State national merit students and the national comparison group did not find the same factors important. The results differed for the comparison group including the engineering students. Results revealed that there were no significant differences concerning factors these students felt were most and least important.

Disparity levels for each of the nine scales were ranked from highest to lowest and presented in Table 11. Instructional effectiveness held the highest disparity score (1.05) and campus support services held the lowest (0.08). The results of the three summary items included in the SSI were compared to the national comparison group as well as the non-national merit engineering student comparison group. The national merit survey respondents held higher group mean scores for all three questions when compared to both of the above

mentioned comparison groups. Finally, the mean scores for the five campus items included in the SSI by the researcher were reported on.

CHAPTER V. DISCUSSION

Introduction

This chapter includes interpretations of the findings of this study, conclusions and implications for student affairs. Each of the original research questions is addressed followed by a discussion of disparity levels and summary items included at the end of the survey as well as campus items specific to Iowa State University. This chapter closes with a discussion of limitations and suggestions for further research.

Conclusions Pertaining to the Research Questions

Satisfaction

The satisfaction level of Iowa State national merit students was compared to the satisfaction level of students included in the national comparison group. It was determined that Iowa State national merit students were more satisfied in all of the nine assessed areas than the comparison group. Areas of satisfaction that showed a very high significant difference ($p<0.001$)include academic advising effectiveness, campus life, and recruitment and financial aid for reasons assumed below.

A goal of Iowa State University is to pursue and retain national merit scholars. The recruitment efforts and scholarship package offered to these students is a reflection of this goal and therefore the recruitment and financial aid scale is one that I expected to show a higher level of satisfaction. The scholarship package that is offered to national merit scholars by Iowa State University is much more extensive than most other public or private institutions throughout the country.

Iowa State provides many avenues for involvement and invites students to participate in any of 550 or more campus organizations. This may be one reason for the higher satisfaction level in the campus life scale when compared to other four-year public universities. High ability students tend to participate in campus programs more than non-high ability students (Freidlander, 1980). If national merit students are more involved than the general student population, this may account for a greater satisfaction level in this area.

National merit students may be more inclined to meet with their academic advisor and utilize services an advisor can provide. It would seem that if Iowa State national merit students are more satisfied with the academic advising effectiveness scale than the national comparison group that they are also more likely to seek out an advisor or may be more involved in activities or opportunities provided by an advisor.

Areas of satisfaction that are found to be significantly different, although not very highly significant ($p<0.01$), for this comparison group, are campus climate and campus support services. National merit students at Iowa State during the recruitment process are directed towards all of the "points of pride" on campus. As they begin their journey as students at Iowa State, they have opportunities to become involved in programs such as the honors program and most likely one or two additional organizations if they are consistent with literature that notes the high involvement level of high ability students. This involvement would give the students an opportunity to experience the campus climate to a greater degree. Likewise, national merit students may be more likely to utilize campus support services such as the library and computer labs in efforts to achieve a high GPA and keep their scholarships at Iowa State.

Areas that show a lower level of significant difference ($p<0.05$) include concern for the individual, instructional effectiveness, and service excellence. Iowa State national merit students are still more satisfied with these areas than the national comparison group but not to the extent of the other scales. A reason that concern for the individual may have a lower significance level may be due to the individualized attention that Iowa State national merit students receive during recruitment visits, attention that is unable to continue at the same level once the student is enrolled or it may simply be that Iowa State has a large student population.

Instructional effectiveness may have shown a lower level of significant difference based on findings from literature that state how high ability students expect more from their instructors (Kennedy, Gordon, & Gordon, 1995), which could affect feelings of satisfaction. On the contrary, the reason that national merit students at Iowa State have higher satisfaction with instructional effectiveness than students in the national comparison group may be because they are more likely to achieve high grades and understand class material, therefore feeling more satisfied.

Service excellence pertains to campus personnel and the services they provide. National merit students may be slightly more satisfied with this area than the national comparison group due to their ability to register early and any other perks that may come along with being a high ability student on campus.

The last category for discussion is student centeredness, which did not show a significant difference when compared to the national database. This category includes a question that refers to students' treatment as individuals. This item had the largest disparity score and therefore may have affected the overall satisfaction rating of this category, with only five other questions. This particular item will be discussed in an upcoming section.

The satisfaction level of Iowa State national merit engineering students was compared to the satisfaction level of non-national merit engineering students at Iowa State. It was determined that national merit students were equally or more satisfied in seven of the nine scales tested than the comparison group. There were no areas that demonstrated a very high level of significant difference. Areas of satisfaction that show statistically high significant differences include academic advising effectiveness, instructional effectiveness, and recruitment and financial aid. Concern for the individual, campus life, and campus support services show a lower level of significant difference and the remaining three scales show no significant difference.

I assume that areas found to be significantly different are so for generally the same reasons as discussed earlier in the first comparison groups. A few important differences to note would be that the campus climate scale mean satisfaction score was exactly the same for both non-national merit engineering students and national merit engineering students. I would speculate this may be because all engineering students at Iowa State may find more similarities in the experiences and services they are provided and the personnel they interact with than students from other majors. The non-national merit engineering students were more satisfied than the national merit engineering students in two scales: campus life and service excellence, although service excellence showed no significant difference. Campus life may have been higher for the non-national merit engineering students because they are more involved in out-of-class activities than the national merit engineering students, although this differs from what the literature states about high ability students and their level of involvement.

I feel that the main difference to note between these comparison groups is that Iowa State national merit engineering students are very similar in their satisfaction scores to Iowa

State non-national merit engineering students. It is very important to note that the majority of national merit students (43.4%) are engineering students. This may either imply that engineering students are more satisfied than students in other majors at Iowa State University or that Iowa State students are more satisfied than the national comparison group. Additional research would need to be conducted to verify this hypothesis.

Importance

The Student Satisfaction Inventory (SSI) allowed students to not only rate items based on satisfaction but also based on importance. As a result, the nine scales addressed in this study can be ranked and scored in order of importance. The results of both a Median and a Mann-Whitney U test concluded that Iowa State national merit students do not find the same aspects of college life important as do the students in the national comparison group. Both groups did, however, find instructional effectiveness, followed by academic advising effectiveness, to be the most important scales and campus life to be the least important. All other scales in between differed for the two comparison groups. (Please refer to Table 7 for actual mean importance scores). This finding implies that Iowa State national merit students are not similar to the comparison group in terms of what factors they feel are important in college.

To determine if there is a difference in scales of importance between the Iowa State national merit engineering students and the Iowa State non-national merit engineering students, a comparison was done using the same two statistical tests. The results of the Mann-Whitney U-test determined that there was no significant difference between these two groups. Both groups felt that instructional effectiveness was the most important scale, followed by

academic advising effectiveness, student centeredness, and campus climate. The two groups differed in the areas of campus support services, concern for the individual and service excellence but agreed that recruitment/ financial aid and campus life are the least important scales. (Please refer to Table 7 for actual mean importance scores). This finding implies that Iowa State national merit engineering students are similar to Iowa State non-national merit engineering students in terms of what factors they feel are important in college.

It is interesting to note that all four comparison groups found instructional effectiveness to be the most important aspect followed by academic advising. All four comparison groups also determined campus life to be the least important aspect. This finding implies that four-year public institutions should provide more attention to and emphasize the improvement or continued success of instruction and student development in a chosen major as well as promoting responsibilities and success of academic advising. Perhaps less attention needs to be given to areas that include residence life and campus organizations/student activities. It is important to note that this finding disagrees with the literature review, which states that students involved in out-of class activities are more positive about their college experience (Keagan, 1978). In summary, campus life may actually be an important factor but not realized as one by students while in college.

Literature findings support the conclusions that instructional effectiveness and academic advising effectiveness are important factors. Students who are dissatisfied with faculty and academic advising interaction are more likely to leave college (Lyons & others, 1983).

Disparity Levels

As discussed in Chapter 4, disparities are the differences between the students' perception of importance and their level of satisfaction pertaining to college life. The disparity level refers to the difference between the mean importance score and the mean satisfaction score. This score indicates that the students' expectations are either being met or not being met with regard to the aspect of college being assessed. (Please refer to Table 13).

Table 13. Scale comparisons in satisfaction, importance and disparity for ISU national merit students

Scale	Satisfaction Score	Satisfaction Rank	Importance Score	Importance Rank	Disparity Score
Instructional Effectiveness	5.21	3	6.26	1	1.05
Concern for the Individual	4.91	8	5.86	4	0.95
Student Centeredness	5.03	6	5.91	3	0.88
Campus Climate	5.04	5	5.84	5	0.80
Service Excellence	4.85	9	5.56	7	0.71
Academic Advising	5.39	1	6.02	2	0.63
Recruitment and Financial Aid	5.26	2	5.59	6	0.33
Campus Life	4.97	7	5.26	9	0.29
Campus Support Services	5.19	4	5.27	8	0.08

Table 13 illustrates that Iowa State national merit students rated instructional effectiveness as the area they believed to be most important, yet it achieved the highest positive disparity score. This suggests that even though Iowa State national merit students are highly satisfied with instructional effectiveness at Iowa State (instructional effectiveness is the third highest satisfaction score) there is ample room for improvement. A portion of this disparity gap, however, is supported by the literature that states that most high ability students

have greater expectations of faculty teaching than non-high ability students (Kennedy, Gordon, & Gordon, 1995).

The category these students rated second in importance was academic advising effectiveness but this area also revealed a large disparity between students' perception of importance and their satisfaction level. These findings would suggest that instruction and academic advising at Iowa State should be the focus for considerable efforts toward improvement.

If we examine each of the nine scale attributes it becomes apparent that all nine areas could be improved (there were no negative disparity scores). Campus support services held the lowest disparity score relative to each of the other scales and therefore shows the smallest need for improvement.

Recruitment and financial aid and campus support services are areas with which national merit students feel they are more satisfied but areas they have categorized as less important. This finding might suggest that these areas still need attention but not as urgently.

Campus climate, student centeredness, and concern for the individual are three areas with which students are less satisfied but at the same time felt are more important. This finding would indicate areas on which the institution should focus considerable attention. If unattended to, these areas could potentially increase attrition, having a negative effect on retention goals.

Service excellence and campus life were considered by national merit students to be less important and less satisfactory. These areas could be further investigated by the institution. Service excellence may be of lower importance to national merit students but may

be an area where lower satisfaction is not acceptable in terms of an institution's reputation and well-being.

Campus life is lowest on the importance scale for all four comparison groups. However, it is interesting to note that the individual survey item that held the lowest disparity level, meaning that it had exceeded the national merit students' expectations, was a campus life question. Question #9 stated: "A variety of intramural activities are offered." Campus life may be an area that students do not see as directly relating to their educational goals and therefore believe it to be unimportant. As a student in higher education and an academic advisor, I realize the importance of this area in producing a well-rounded student whose education depends on more than what can be learned in the classroom. Lower satisfaction in this area should be addressed by the institution for the overall benefit of the students.

The level of disparity helps to determine if students' expectations are being met. Prospective Iowa State national merit students receive individualized visits to campus that cater to their interests. The majority of non-national merit prospective students do not receive this individualized attention. In order to determine if this has an effect on national merit students and their satisfaction, one specific question on the SSI was examined. Question # 59 states: "This institution shows concern for students as individuals." This question had the highest disparity level of all the questions included in each of the nine scales, scoring a 1.92. National merit students felt this area was the furthest from meeting their expectations. This discrepancy may be due to the fact that prospective national merit students receive personalized attention during campus visits that at a large institution like Iowa State, cannot be continued once the student is enrolled. As a result, their expectation is not met.

Summary Items and Campus Items

The three summary items numbered 99, 100, and 101 in the SSI discuss general student expectations and satisfaction pertaining to Iowa State University. Conclusions drawn from these questions strongly suggest that national merit students at Iowa State are more satisfied with college than the students included in the national comparison group. This could be the only conclusion when national merit students were very highly, highly, or significantly more satisfied than the comparison group on eight of the nine scales analyzed as a part of this study. Iowa State national merit engineering students were also more satisfied generally than non-national merit engineering students. This again would be the expected outcome when national merit engineering students were highly or significantly more satisfied than the comparison group on five of the nine scales.

I chose to ask five additional questions pertaining to unique aspects of Iowa State University. All five questions can be found in Appendix D. The first question (# 74) dealt with the topic of learning communities. Learning communities at Iowa State allow students to take classes together, occasionally live on the same floor of a residence hall, and socialize with other students, faculty, and staff. National merit students at Iowa State had a negative disparity score for this question; meaning learning communities had a much higher satisfaction score than importance score. A negative disparity score is seen as exceeding an expectation. This particular question regarding learning communities was the only campus item that exceeded the students' expectations. High ability students such as national merit students may not initially find the opportunities provided through a learning community necessary for academic success but later, after involvement, find they provide more opportunities than expected.

The second question (# 75) asked students if they were satisfied with the honors program at Iowa State. All national merit students are eligible to be in the honors program, although not all students choose to do so. The third question (# 76) asked students to rate their satisfaction with cooperative learning. Cooperative learning allows students to solve problems together, study together, and work on projects in small groups. In short, students help each other to learn a concept and complete an assignment. The fourth question (# 77) gave national merit students the opportunity to provide feedback to the Office of Special Recruitment and the last question (# 78) is a general one discussing student choice of an institution.

Satisfaction scores show that the national merit students at Iowa State are satisfied with their choice of an institution (# 78) and also feel this choice was of great importance. Out of the five campus items, national merit students were the least satisfied with cooperative learning. National merit students may be more dissatisfied with this area because when forced into small group work, they often spend their time helping other group members understand the assignment, which is not challenging to them. They may also find it necessary to take on more than their share of the project in order to ensure a high group grade. The difference between cooperative learning and a learning community is that in cooperative learning, groups are formed at the instructor's request and then a project is usually completed and a group grade is assigned. A learning community simply allows the student the opportunity to form study groups by having the same group of students take the same sections of several classes together. Learning communities also may provide a common residence floor, peer and faculty mentors, and social activities.

National merit students were satisfied with the Office of Special Recruitment and felt their expectations were met. Similar results were obtained with regard to the honors program.

Implications for Student Affairs

Implications of the Student Satisfaction Inventory

The implications for the use of data collected through the SSI include but are not limited to the following. A college or university could use the percentage level of satisfied students to predict retention and to address student retention issues. Feedback can be provided to faculty, staff, and students based on responses to the survey questions.

The strengths of the university can be presented to the public better when they are identified through a valid study. These strengths can be highlighted in recruitment activities. Determining the satisfaction level of students allows areas that need improvement to be identified. The data display concerns of the current student body and therefore can be used to guide future strategic planning.

Offices of Admission can use this information as a recruitment tool. For example, having this type of data allows the Iowa State Admissions Office to show prospective national merit students that Iowa State cares about their satisfaction as a student here. Strengths of a university, as determined by its own students, can also be brought to the attention of prospective visiting students and their parents.

Finally, the results of this type of study could be used for accreditation purposes and total quality management and to align budget decisions with students' priorities.

Implications Specific to Iowa State University

As a result of this research, it can be said that national merit students at Iowa State University are satisfied with college. It can also be said that this group of students is more satisfied than the national comparison group. Iowa State University should be acknowledged for this accomplishment. The disparity scores for each scale also show that areas within Iowa State University could be improved. There were no negative disparity scores for any of the nine scales. A negative disparity score would indicate that an expectation had been exceeded. Findings would indicate that there is still room for improvement.

Each scale is made up of questions that relate to specific areas or topics within the scale. Each individual question has its own disparity score (please refer to Appendix H). My recommendation would be that each department or unit that is responsible for aspects related to any given scale, take a close look at the questions in that scale that pertain to their area. Based on the topic(s) addressed in each question and the resulting disparity level, decisions could be made within each department as to where change may or may not be necessary. As the researcher, it is not my place to make these decisions nor am I qualified to do so. I can only provide the information necessary for such decisions to be made by the appropriate departmental leader and/or staff member(s).

As an academic advisor, I could look at the questions that make up this particular scale (6, 14, 19, 33, and 55) and see that the largest performance gap is in item #55, "Major requirements are clear and reasonable". Because this is an area with which I am familiar, I can determine if improvements can be made and if so I am in the position to make positive changes.

In order for departments to make changes based on the results of this research, I think it is important for departments to feel that the results of this study can be applied to all students at Iowa State, not just the national merit students. The second comparison between national merit engineering students and non-national merit engineering students did show that these two groups are very similar in the aspects of college that they find most important and in their satisfaction at Iowa State. In the past, the College of Engineering has been an area of focus for the university in terms of funding and other benefits so it is not possible to generalize the findings of this study to all students at Iowa State. Students with majors outside of the College of Engineering may have different experiences or perceptions of the university. What can be said is that the results of this study would most likely benefit all students at Iowa State, not exclusively the national merit students. Also, based on this research, Iowa State now knows that its national merit students are satisfied with their college experience. In order to help ensure that ***all*** students are equally satisfied the same treatment should be received by all students. To conclude, the changes made by individual departments based on this research would benefit all students at Iowa State.

In order for each area or department to have access to this material, I would further recommend that the Office of Special Recruitment distribute the relevant information to the appropriate departments. I have provided a copy of the completed study to the Office of Special Recruitment to use as they wish.

Limitations and External Validity

"External validity according to Borg & Gall (1989) is the extent to which the findings of an experiment can be applied to particular settings" (p. 649). As a result of the chi-square tests that are shown in Tables 3-6, it can be stated that the results of this study can be generalized to the population from which the sample is drawn.

The comparison made between national merit students at Iowa State and the national comparison group concerning what aspects of college life they found to be more or less important differed significantly. For the second comparison group of engineering students at Iowa State, there was not a significant difference. Satisfaction mean scores were also much more similar for this comparison group. This would suggest that the results of this study can be generalized to all engineering students at Iowa State University.

Iowa State University is often compared to a group of 11 land grant universities. Each is the public land grant university in its state, most are members of the Association of American Universities, and all are classified as Research I institutions in the 1994 Carnegie Classification of Higher Education. Purdue University is the only peer institution included in the national comparison group database. Other institutions in the national comparison database tended to be smaller and were not Research I institutions. This could be considered a limitation of this study and the SSI as a comparison tool for Research I institutions.

The scholarship package offered by Iowa State University is much more extensive than most of the awards given out to high ability students by other public or private institutions throughout the country. This could have an effect on the results of this survey concerning national merit students' satisfaction in certain areas or their satisfaction with Iowa State overall.

Finally, this is a quantitative study that was designed to determine areas of satisfaction or dissatisfaction in the college lives of national merit students at Iowa State University. The study does not determine ***why*** the students are satisfied or dissatisfied with certain aspects of the university. A follow-up study using qualitative methods would more appropriately examine this question.

Suggestions for Further Research

To further validate the findings of this research it would be logical to replicate this study and continue to compare students' perceptions over time. Annual surveying would provide systematic feedback and allow for special initiatives to be assessed.

Several other comparisons could also be done with the data collected through the SSI. In the descriptive statistics, the survey respondents were divided into categories that included: major, year in school, gender, and in-state/out-of-state. Using these comparison groups, questions such as the following could be analyzed:

National merit students in which major at Iowa State are the most satisfied?

Are males more satisfied than females in the College of Engineering?

Results obtained from administering the SSI to Iowa State national merit students could be compared to different data sets that might be more comparable. For example, Iowa State national merit students could be compared with students from other Research I, land grant institutions of the same size. Also, Iowa State national merit students could be compared with national merit students at other institutions. This would help to answer the

question: Are national merit students at Iowa State more satisfied than the national comparison group because they are high ability students or because they attend Iowa State?

Further research could also be conducted with the comparison group that included only engineering students from Iowa State. This research could determine if engineering students tend to be more satisfied than students in other majors or if Iowa State students in general tend to be more satisfied than students in the national comparison group.

Finally, as mentioned above, a qualitative study should be done as a follow-up to a quantitative study. Areas that the national merit students found to be the most and least important could be discussed. Specific items on the SSI that showed a very high or very low level of satisfaction could be identified and discussed, as well as those items with a very high or a negative disparity level. Assumptions I made in this study as to why certain scales had a higher or lower significant difference could also be confirmed or disproved.

It is critical to perform assessments in order to pinpoint areas of dissatisfaction as well as to learn from areas of high satisfaction. A complete picture can be better seen when students voices are heard and "***what*** I am satisfied with" is complemented by "***why*** I am satisfied". Only then can the college environment be truly transformed to meet the needs of its students.

APPENDIX A

NATIONAL MERIT DEMOGRAPHIC DATA

1999 National Merit Rankings

All Schools

1.	Harvard - 394
2.	Texas - 244
3.	Stanford - 229
4.	Rice - 183
5.	TX A&M - 181
6.	Florida - 176
7.	Yale - 170
8.	Cal-Berkeley - 167
9.	UChicago - 139
10.	Oklahoma - 136
11.	MIT - 133
12.	Arizona State - 131
12	Washington-St.Louis - 131
14	BYU - 130
15	Northwestern - 128
16	NYU - 125
17	USC - 122
18	**Iowa State - 116**
19	Princeton - 111
20	Ohio State - 109

Top 10 Public Institutions

1.	Texas - 244
2.	TX A&M - 181
3.	Florida - 176
4.	Cal-Berkeley - 167
5.	Oklahoma - 136
6.	Arizona State - 131
7.	**Iowa State - 116**
8.	Ohio State - 109
9.	Kansas - 101
10.	GA Tech - 100

Top 10 - Land Grant Institutions

1.	TX A&M - 181
2.	Florida - 176
3.	Cal-Berkeley - 167
4.	MIT - 133
5.	**Iowa State - 116**
6.	Ohio State - 109
7.	Kentucky - 65
8.	Purdue - 52
9.	Arizona - 49
10.	Georgia - 49

Iowa State Peer 11 Institutions

11.	TX A&M - 181
12.	**Iowa State - 116**
13.	Ohio State - 109
14.	Purdue - 52
15.	Arizona - 49
16.	Mich State - 48
17.	Minnesota - 41
18.	UW-Madison - 29
19.	Illinois - 24
20.	Calif. - Davis - 23
21.	NC State - 14

Big 12 Schools

1.	Texas - 244
2.	TX A&M - 181
3.	Oklahoma - 136
4.	**Iowa State - 116**
5.	Kansas - 101
6.	Baylor - 51
7.	Nebraska - 29
8.	OSU - 23
9.	Missouri - 22
10.	K-State - 22
11.	TX Tech - 12
12.	Colorado - 3

Iowa Colleges & Universities

1.	**Iowa State - 116**
2.	Iowa - 30
3.	Grinnell - 29
4.	Drake - 7
5.	Luther - 5
6.	Dordt - 2
7.	Cornell - 1

*In 1999 Iowa State enrolled more National Merit Scholars than all Iowa schools combined!

1999 NATIONAL ACHIEVEMENT, HISPANIC & MERIT SCHOLAR SUMMARY

Mean ACT Scores (National Merit Scholars)	1998	1999
Mean Composite Score	32	32.6
Perfect Score of 36	1	3
Total Scholars with ACT scores	98	102

Mean SAT Scores (National Merit Scholars)	1998	1999
Mean Composite Score	1337	1464.7
Perfect Score of 1600	0	1
Perfect score of 800 Verbal	14	11
Perfect score of 800 Math	10	11
Total Scholars with SAT scores	107	108

New Achievement, Hispanic and Merit Scholars by Residence	1998	1999
Alabama	1	
California		1
Colorado	1	2
Iowa	59	60
Illinois	10	14
Indiana	2	
Kansas		2
Louisiana	1	
Maryland		1
Michigan		1
Minnesota	11	15
Missouri	4	4
North Dakota	2	1
Nebraska	4	7
New Jersey	1	1
New York		1
Ohio	1	1
Oregon	1	1
Pennsylvania		1
South Carolina	1	1
South Dakota	3	5
Texas	1	5
Virginia	2	1
Washington		1
Wisconsin	6	7
Wyoming	1	
Total	112	133

APPENDIX B

STUDENT SATISFACTION INVENTORY

usaGroup Noel-Levitz

STUDENT SATISFACTION INVENTORY™

4-Year College and University Version

Laurie A. Schreiner, Ph.D., and Stephanie L. Juillerat, Ph.D.

Dear Student,

Your institution is interested in systematically listening to its students. Therefore, your thoughtful and honest responses to this inventory are very important.

You are part of a sample of students carefully selected to share feedback about your college experiences thus far. Your responses will give your campus leadership insights about the aspects of college that are important to you as well as how satisfied you are with them.

To preserve confidentiality, your name is not requested.

— Thank you for your participation.

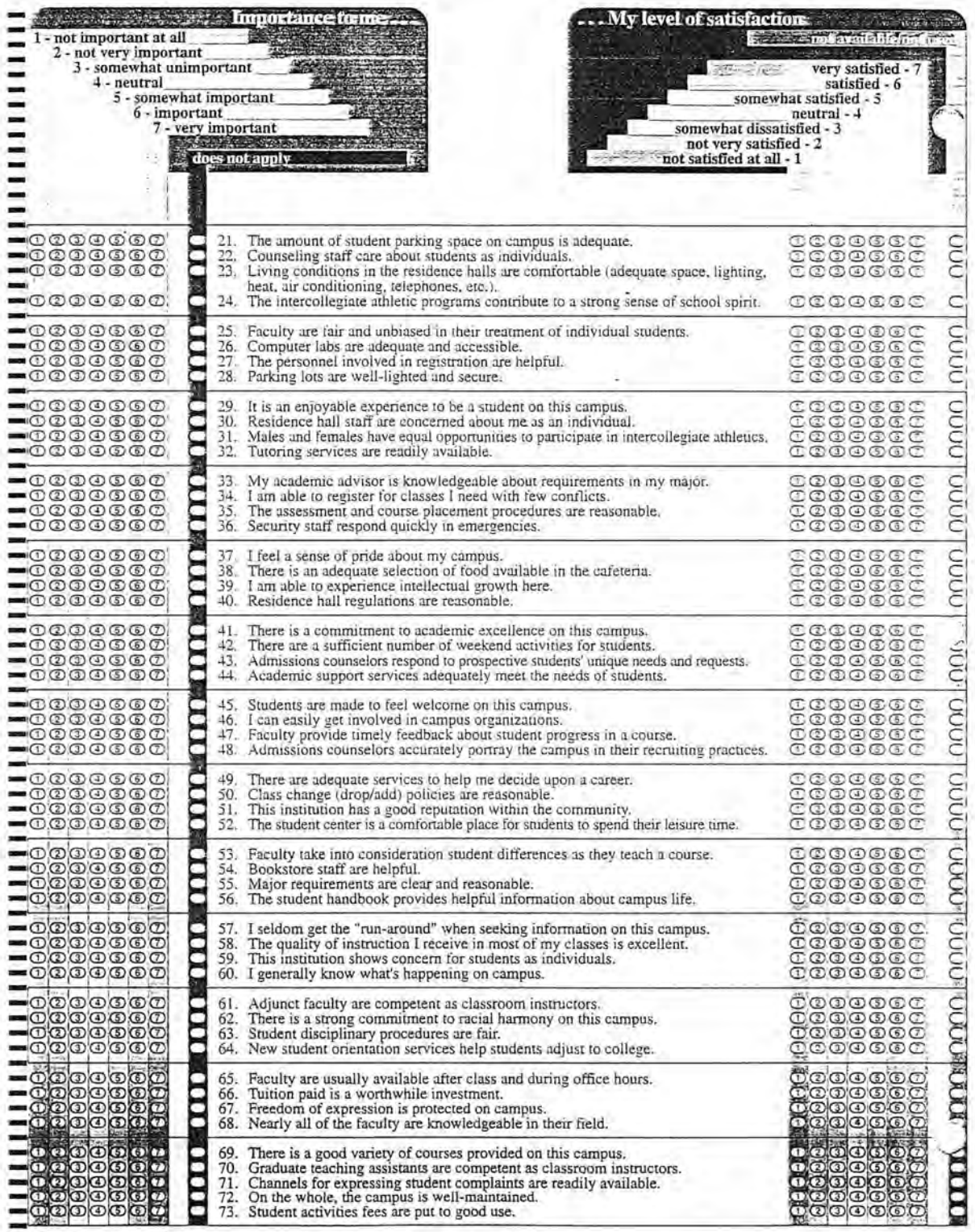
Instructions:

- Use a No. 2 pencil only. Please do not use ink or ballpoint pen.
- Erase changes completely and cleanly.
- Completely darken the oval that corresponds to your response.

Each item below describes an expectation about your experiences on this campus. On the *left*, tell us how important it is for your institution to meet this expectation. On the *right* tell us how satisfied you are that your institution has met this expectation.

Importance to me		My level of satisfaction
1 - not important at all 2 - not very important 3 - somewhat unimportant 4 - neutral 5 - somewhat important 6 - important 7 - very important does not apply		not available/not used very satisfied - 7 satisfied - 6 somewhat satisfied - 5 neutral - 4 somewhat dissatisfied - 3 not very satisfied - 2 not satisfied at all - 1
① ② ③ ④ ⑤ ⑥ ⑦	1. Most students feel a sense of belonging here.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	2. The campus staff are caring and helpful.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	3. Faculty care about me as an individual.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	4. Admissions staff are knowledgeable.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	5. Financial aid counselors are helpful.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	6. My academic advisor is approachable.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	7. The campus is safe and secure for all students.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	8. The content of the courses within my major is valuable.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	9. A variety of intramural activities are offered.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	10. Administrators are approachable to students.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	11. Billing policies are reasonable.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	12. Financial aid awards are announced to students in time to be helpful in college planning.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	13. Library staff are helpful and approachable.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	14. My academic advisor is concerned about my success as an individual.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	15. The staff in the health services area are competent.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	16. The instruction in my major field is excellent.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	17. Adequate financial aid is available for most students.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	18. Library resources and services are adequate.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	19. My academic advisor helps me set goals to work toward.	① ② ③ ④ ⑤ ⑥ ⑦
① ② ③ ④ ⑤ ⑥ ⑦	20. The business office is open during hours which are convenient for most students.	① ② ③ ④ ⑤ ⑥ ⑦

PLEASE DO NOT MARK IN THIS AREA 1129382


Importance to me...
1 - not important at all
2 - not very important
3 - somewhat unimportant
4 - neutral
5 - somewhat important
6 - important
7 - very important
does not apply
...My level of satisfaction
not available/not aware
very satisfied - 7
satisfied - 6
somewhat satisfied - 5
neutral - 4
somewhat dissatisfied - 3
not very satisfied - 2
not satisfied at all - 1
21. The amount of student parking space on campus is adequate.
22. Counseling staff care about students as individuals.
23. Living conditions in the residence halls are comfortable (adequate space, lighting, heat, air conditioning, telephones, etc.).
24. The intercollegiate athletic programs contribute to a strong sense of school spirit.
25. Faculty are fair and unbiased in their treatment of individual students.
26. Computer labs are adequate and accessible.
27. The personnel involved in registration are helpful.
28. Parking lots are well-lighted and secure.
29. It is an enjoyable experience to be a student on this campus.
30. Residence hall staff are concerned about me as an individual.
31. Males and females have equal opportunities to participate in intercollegiate athletics.
32. Tutoring services are readily available.
33. My academic advisor is knowledgeable about requirements in my major.
34. I am able to register for classes I need with few conflicts.
35. The assessment and course placement procedures are reasonable.
36. Security staff respond quickly in emergencies.
37. I feel a sense of pride about my campus.
38. There is an adequate selection of food available in the cafeteria.
39. I am able to experience intellectual growth here.
40. Residence hall regulations are reasonable.
41. There is a commitment to academic excellence on this campus.
42. There are a sufficient number of weekend activities for students.
43. Admissions counselors respond to prospective students' unique needs and requests.
44. Academic support services adequately meet the needs of students.
45. Students are made to feel welcome on this campus.
46. I can easily get involved in campus organizations.
47. Faculty provide timely feedback about student progress in a course.
48. Admissions counselors accurately portray the campus in their recruiting practices.
49. There are adequate services to help me decide upon a career.
50. Class change (drop/add) policies are reasonable.
51. This institution has a good reputation within the community.
52. The student center is a comfortable place for students to spend their leisure time.
53. Faculty take into consideration student differences as they teach a course.
54. Bookstore staff are helpful.
55. Major requirements are clear and reasonable.
56. The student handbook provides helpful information about campus life.
57. I seldom get the "run-around" when seeking information on this campus.
58. The quality of instruction I receive in most of my classes is excellent.
59. This institution shows concern for students as individuals.
60. I generally know what's happening on campus.
61. Adjunct faculty are competent as classroom instructors.
62. There is a strong commitment to racial harmony on this campus.
63. Student disciplinary procedures are fair.
64. New student orientation services help students adjust to college.
65. Faculty are usually available after class and during office hours.
66. Tuition paid is a worthwhile investment.
67. Freedom of expression is protected on campus.
68. Nearly all of the faculty are knowledgeable in their field.
69. There is a good variety of courses provided on this campus.
70. Graduate teaching assistants are competent as classroom instructors.
71. Channels for expressing student complaints are readily available.
72. On the whole, the campus is well-maintained.
73. Student activities fees are put to good use.

Your institution may choose to provide you with additional questions on a separate sheet. The section below numbered 74 - 83 is provided as a response area for those additional questions. Continue on to item 84 when you have completed this section.

(If items 74-83 not available, skip to item 84.)

74. 75. 76. 77. 78.

79. 80. 81. 82. 83.

How satisfied are you that this campus demonstrates a commitment to meeting the needs of:

84. Part-time students?
85. Evening students?
86. Older, returning learners?
87. Under-represented populations?
88. Commuters?
89. Students with disabilities?

How important were each of the following factors in your decision to enroll here?

90. Cost
91. Financial aid
92. Academic reputation
93. Size of institution
94. Opportunity to play sports
95. Recommendations from family/friends
96. Geographic setting
97. Campus appearance
98. Personalized attention prior to enrollment

Choose the one response that best applies to you and darken the corresponding oval for each of the questions below.

99. So far, how has your college experience met your expectations?
① Much worse than I expected
② Quite a bit worse than I expected
③ Worse than I expected
④ About what I expected
⑤ Better than I expected
⑥ Quite a bit better than I expected
⑦ Much better than I expected

100. Rate your overall satisfaction with your experience here thus far.
① Not satisfied at all
② Not very satisfied
③ Somewhat dissatisfied
④ Neutral
⑤ Somewhat satisfied
⑥ Satisfied
⑦ Very satisfied

101. All in all, if you had it to do over again, would you enroll here?
① Definitely not
② Probably not
③ Maybe not
④ I don't know
⑤ Maybe yes
⑥ Probably yes
⑦ Definitely yes

CONTINUE TO THE NEXT PAGE

Choose the one response that best describes you and darken the corresponding oval for each of the items below.

102. Gender:
1. Female
2. Male

103. Age:
1. 18 and under
2. 19 to 24
3. 25 to 34
4. 35 to 44
5. 45 and over

104. Ethnicity/Race:
1. African-American
2. American Indian or Alaskan Native
3. Asian or Pacific Islander
4. Caucasian/White
5. Hispanic
6. Other
7. Prefer not to respond

105. Current Enrollment Status:
1. Day
2. Evening
3. Weekend

106. Current Class Load:
1. Full-time
2. Part-time

107. Class Level:
1. Freshman
2. Sophomore
3. Junior
4. Senior
5. Special Student
6. Graduate/Professional
7. Other

108. Current GPA:
1. No credits earned
2. 1.99 or below
3. 2.0 - 2.49
4. 2.5 - 2.99
5. 3.0 - 3.49
6. 3.5 or above

109. Educational Goal:
1. Associate degree
2. Bachelor's degree
3. Master's degree
4. Doctorate or professional degree
5. Certification (initial or renewal)
6. Self-improvement/pleasure
7. Job-related training
8. Other

110. Employment:
1. Full-time off campus
2. Part-time off campus
3. Full-time on campus
4. Part-time on campus
5. Not employed

111. Current Residence:
1. Residence hall
2. Fraternity / Sorority
3. Own house
4. Rent room or apartment off campus
5. Parent's home
6. Other

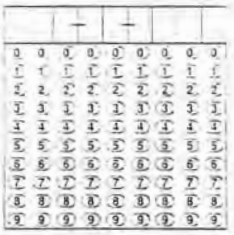
112. Residence Classification:
1. In-state
2. Out-of-state
3. International (not U.S. citizen)

113. Disabilities:
Physical disability or a diagnosed learning disability?
1. Yes
2. No

114. When I entered this institution, it was my:
1. 1st choice
2. 2nd choice
3. 3rd choice or lower

Your Social Security Number is requested for research purposes and **will not** appear on any report.

Social Security Number:
Write your Social Security number in the nine spaces of the box provided. Completely darken the corresponding oval.



115. Major:
Fill in major code from list provided by your institution.

116. Item requested by your institution:
1.
2.
3.
4.
5.
6.

Thank you for taking the time to complete this inventory.
Please do not fold.

PLEASE DO NOT MARK IN THIS AREA

1129382

Mark Reflex® by NCS MM1008S0-2 7 Printed in U.S.A.

APPENDIX C

NATIONAL COMPARISON INSTIUTIONS

STUDENT SATISFACTION INVENTORY
National Comparison Groups
as of February 1, 2000

Four Year Public Institutions

Adams State College, CO
Alabama State University, AL
Angelo State University, TX
Auburn University, AL
Austin Peay State University, TN
Bemidji State University, MN
Black Hills State University, SD
Bloomsburg University, PA
Bluefield State College, WV
California Maritime Academy, CA
California State University – Fresno, CA
California State University- Hayward, CA
California State University – Hayward – Contra Costa Campus, CA
California State University – Los Angeles, CA
California State University - Northridge, CA
California State University - Sacramento, CA
California State University – Stanislaus, CA
California University of Pennsylvania, PA
Carleton University, ON
Central Connecticut State University, CT
Central Washington Univesity, WA
Chadron State College, NE
Cheyney University of Pennsylvania, PA
Chowan College, NC
Christopher Newport University, VA
Clemson University, SC
Clinch Valley College of the Univ. of Virginia, VA
Coastal Carolina University, SC
College of William and Mary, VA
Colorado School of Mines, CO
Coppin State College, MD
Dakota State University, SD
Delta State University, MS
Eastern Illinois University, IL
Eastern Oregon University, OR
Eastern New Mexico University, NM
Edinboro University of Pennsylvania, PA
Elizabeth City State University, NC
Fairmont State College, WV
Fayetteville State University, NC
Ferris State University, MI
Florida State University, FL
Francis Marion University, SC
Henderson State University, AR
Idaho State University, ID
Indiana University Purdue Univ. at Fort Wayne, IN
Indiana University Northwest, IN
Iowa State University, IA
Jersey City State College, NJ
Keene State College, NH
Kent State University, OH
Kentucky State University, KY
Kutztown University of Pennsylvania, PA
Lake Superior State University, MI
Lamar University - Beaumont, TX
Lewis-Clark State College, ID
Livingston University, AL
Longwood College, VA
Mankato State University, MN
Marshall University, WV
Massachusetts Maritime Academy, MA
Metropolitan State College of Denver, CO
Midwestern State University, TX
Millersville University of Pennsylvania, PA
Minot State University, ND
Mississippi University for Women, MS
Mississippis Valley State University, MS
Missoula College of Technology of the University of Montana, MT
Montana State University, MT
Montana Tech of the University of Montana, Butte, MT
Moorhead State University, MN

Morgan State University, MD
New Jersey Institute of Technology, NJ
New Mexico Highlands University, NM
New Mexico Institute of Mining and Technology, NM
North Adams State College, MA
North Carolina A & T University, NC
North Carolina Central University, NC
North Central Bible College, MN
North Dakota State University-Main Campus, ND
North Georgia College and State University, GA
Northern Arizona University, AZ
Northern Kentucky University, KY
Northern Michigan University, MI
Northwest Missouri State University, MO
Oakland University, MI
Ohio University – Lancaster, OH
Oklahoma State Universtiy, OK
Old Dominion University, VA
Oregon Institute of Technology, OR
Penn State University - Beaver Campus, PA
Penn State University - Berks Campus, PA
Penn State University - Delaware Campus, PA
Penn State University - Erie-Behrend Campus, PA
Penn State University - Harrisburg Campus, PA
Penn State University - Shanango Campus, PA
Penn State University - Wilkes-Barre Campus, PA
Plymouth State College, NH
Prairie View A & M University, TX
Purdue University - Main Campus, IN
Purdue University - North Central Campus, IN
Radford University, VA
Ramapo College of New Jersey, NJ
Rhode Island College, RI
Rowan University of New Jersey, NJ
Saginaw Valley State University, MI
Sangamon State University, IL
Shepherd College, WV
Shippensburg University of Pennsylvania, PA
Slippery Rock University of Pennsylvania, PA
South Carolina State University, SC
South Dakota School of Mines and Technology, SD
Southeast Missouri State University, MO
Southeastern Oklahoma State University, OK
Southern Arkansas University, AR
Southern Illinois University at Carbondale, IL
State University of New York - Albany, NY

State University of New York - College at Potsdam, NY

State University of New York – Oswego, NY
State University of New York – Purchase College, NY
State University of New York – Stony Brook, NY
Tamkang University, Taiwan
Tennessee Technological University, TN
East Texas A & M University at Commerce, TX
Texas A & M University at Corpus Christi, TX
Texas A & M University at Galveston, TX
Texas Woman's University, TX
The Ohio State University - Lima Campus, OH
The Ohio State University - Main Campus, OH
The Ohio State University – Newark, OH
The University of Akron - Main Campus, OH
Towson State Univeristy, MD
Troy State University, AL
University at Buffalo – SUNY, NY
University of Alabama at Birmingham, AL
University of Alabama in Huntsville, AL
University of Alaska-Southeast, AK
University of Arkansas at Fayetteville, AR
University of Arkansas at Little Rock, AR
University of Arkansas at Pine Bluff, AR
University of Central Arkansas, AR
University of Central Florida, FL
University of Central Oklahoma, OK
University of Connecticut, CT
University of Guam, Guam
University of Illinois at Chicago, IL
Univeristy of Kentucky (Lexington), KY
University of Louisville, KY
University of Maine at Augusta, ME
University of Maine at Fort Kent, ME
University of Maine at Machias, ME
University of Maryland at College Park, MD
University of Maryland, Eastern Shore, MD
University of Massachusetts – Lowell, MA
University of Memphis, TN
University of Michigan - Flint, MI
University of Mississippi, MS
University of Missouri - Kansas City, MO
University of Missouri – Kansas City School of Dentistry, MO
University of Missouri – St. Louis, MO
University of Montana, MT
University of Monterrey, NL, Mexico
University of Nevada - Reno, NV
University of New Mexico – Main Campus, NM
University of New Orleans, LA
University of North Alabama, AL

University of Northern Colorado, CO
University of South Dakota, SD
University of South Florida, FL
University of Southern Colorado, CO
University of Texas at San Antonio, TX
University of Texas at Tyler, TX
University of Texas of the Permian Basin, TX
University of the District of Columbia, DC
University of the West Indies, West Indies
University of Toledo, OH
University of Vermont, VT
University of Windsor, ON
University of Wisconsin - Eau Claire, WI
University of Wisconsin – Parkside, WI
University of Wisconsin - River Falls, WI
University of Wyoming
Utah State University, UT
Virginia Commonwealth University, VA
Virginia State University, VA
Walla Walla Community College, WA
Washington State University, WA
Weber State University, UT
West Virginia State College, WV
Western Connecticut State University, CT
Western Maryland College, MD
Western Montana College of the University of Montana, MT
Western State College, CO
William Paterson College, NJ
Winona State University, MN
Worcester State College, MA
Wright State University, OH
Youngstown State University, OH

Total Institutions = 198

APPENDIX D

CAMPUS ITEMS

Items 74-78

Fill in your answer to these questions in the space provided on the survey. Answer these questions using the same format as all of the other questions.

74. Learning communities improve the academic environment on campus.

75. The honors program has enriched my experience at Iowa State University.

76. My ability to learn is enhanced by professors who use cooperative learning techniques in the classroom.

77. The Office of Special Recruitment provides everything a National Merit student might need.

78 Iowa State University is the best choice I could have made.

Please do not return this sheet.

Thank you!

APPENDIX E

COVER LETTER

College of Education
Iowa State University
April 3, 2000

Dear National Merit Scholar,

Achieving the status of National Merit Scholar is an accomplishment to be proud of. Iowa State University is also proud that you have chosen this institution to continue your education.

To complete my graduate degree in Higher Education at Iowa State, I am writing a thesis on the college satisfaction rates of National Merit Scholars. My interest in this area stems from a graduate assistantship I held last year in the Office of Special Recruitment.

Enclosed you will find a survey that asks you to give feedback pertaining to your college experiences thus far. Your response will provide insights into the aspects of college that are important to you as well as your satisfaction with each of these areas. The information that you provide will be shared with university personnel who can work towards making the changes you feel are important.

Your time is valuable and therefore, I am only asking for 25 minutes of that time to complete the enclosed survey. Consider this as your opportunity to help insure that future efforts made by the university are focused on what best meets the needs of National Merit Scholars.

Once you have completed the survey, please place it inside the envelope provided and either send it in campus mail or leave it in a drop box that will be provided in 310 Alumni Hall or 2019 Black Engineering. If you choose not to fill out the survey, please take the time to return the blank survey back to me in the envelope provided. You'll note on the first page of the survey there is an identifier number. This will be used to send a follow-up letter for unreturned surveys as well as to collect additional demographic data that I will be receiving from the Registrar's Office. Be assured that all data collected will be confidential and can not be tied back to individual students. If you have any questions for me or would like to know the results of the survey, please contact me through email at deide@iastate.edu All surveys need to be returned by April 14th. Thank you for your time.

Sincerely,

Deborah Holmes
Graduate Student, Higher Education

Tom Becker
Coordinator, Special Recruitment Program

Enclosure (2)

APPENDIX F

APPROVAL FORMS

Information for Review of Research Involving Human Subjects

Iowa State University

(Please type and use the attached instructions for completing this form)

1. Title of Project: National Merit Scholars -- College Satisfaction

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Deborah Holmes	03/21/00	Deborah K Holmes
Typed name of principal investigator	Date	Signature of principal investigator
Educational Leadership & Policy Studies	2019 Black Engineering	
Department	Campus address	
515-294-1603		
Phone number to report results		

3. Signatures of other investigators	Date	Relationship to principal investigator
Nancy J Evans	3/21/2000	Major Professor

4. Principal investigator(s) (check all that apply)
☐ Faculty ☒ Staff ☒ Graduate student ☐ Undergraduate student

5. Project (check all that apply)
☐ Research ☒ Thesis or dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)

adults, non-students: ____ # minors under 14: ____ # minors 14 - 17: ____

ISU students: 498 Other (explain): ____

7. Brief description of proposed research involving human subjects: (See instructions, item 7. Use an additional page if needed.)

The problem this research will examine consists of determining the college satisfaction levels of National Merit Scholars currently attending Iowa State University. The Student Satisfaction Inventory will be used to gather data. All participating students will rate their satisfaction levels, on a scale from 1-7, pertaining to several different areas of college life. These areas are academic advising effectiveness, campus climate, concern for the individual, instructional effectiveness, recruitment and financial aid effectiveness, registration effectiveness, responsiveness to diverse populations, safety and security, service excellence, student centeredness, support services, and campus life. All National Merit students currently enrolled at Iowa State University will be sent a survey. Subjects who choose to complete the survey will be asked to mail the survey back to the researcher via campus mail or put the survey into one of two drop boxes provided by the researcher and located on campus. Students who do not return the survey will be sent a follow-up letter and survey, two weeks after the original mailing is sent.

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent:
☐ Signed informed consent will be obtained. (Attach a copy of your form.)
☒ Modified informed consent will be obtained. (See instructions, item 8.)
☐ Not applicable to this project.

9. Confidentiality of Data: Describe below the methods you will use to ensure the confidentiality of data obtained. (See instructions, item 9.)

A data file will be created that will link the individual student's ISU identification number to a survey number that I will assign. This will be used for follow-up purposes as well as to collect demographic data. To ensure confidentiality, I will eliminate any personal identifiers once demographic data is obtained. All data pertaining to this study will be stored on my personal computer disk. I will be the only person with access to the disk. No copies will be made of the disk and I will delete all of the information from the disk once the study has been completed. Students will be made aware of demographic data to be collected through the cover letter.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

Nothing can be attributed to any student directly.

11. **CHECK ALL** of the following that apply to your research:

☐ A. Medical clearance necessary before subjects can participate
☐ B. Administration of substances (foods, drugs, etc.) to subjects
☐ C. Physical exercise or conditioning for subjects
☐ D. Samples (blood, tissue, etc.) from subjects
☐ E. Administration of infectious agents or recombinant DNA
☐ F. Deception of subjects
☐ G. Subjects under 14 years of age and/or ☐ Subjects 14 - 17 years of age
☐ H. Subjects in institutions (nursing homes, prisons, etc.)
☐ I. Research must be approved by another institution or agency (Attach letters of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments):

Items A–E Describe the procedures and note the proposed safety precautions.

_____

Items D–E The principal investigator should send a copy of this form to Environmental Health and Safety, 118 Agronomy Lab for review.

_____

Item F Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

_____

Item G For subjects under the age of 14, indicate how informed consent will be obtained from parents or legally authorized representatives as well as from subjects.

_____

Items H–I Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.

_____

Last name of Principal Investigator Holmes

Checklist for Attachments and Time Schedule
The following are attached (please check):

12. ☒ Letter or written statement to subjects indicating clearly:
    a) the purpose of the research
    b) the use of any identifier codes (names, #'s), how they will be used, and when they will be removed (see item 17)
    c) an estimate of time needed for participation in the research
    d) if applicable, the location of the research activity
    e) how you will ensure confidentiality
    f) in a longitudinal study, when and how you will contact subjects later
    g) that participation is voluntary; nonparticipation will not affect evaluations of the subject

13. ☐ Signed consent form (if applicable)

14. ☐ Letter of approval for research from cooperating organizations or institutions (if applicable)

15. ☒ Data-gathering instruments

16. Anticipated dates for contact with subjects:

First contact	**Last contact**
04/03/00	04/17/00
Month/Day/Year	Month/Day/Year

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

07/15/00
Month/Day/Year

18. Signature of Departmental Executive Officer: Daniel C. Robinson — Date: 3/21/00 — Department or Administrative Unit: Educational Leadership & Policy Studies

19. Decision of the University Human Subjects Review Committee:
☒ Project approved ☐ Project not approved ☐ No action required

Name of Human Subjects in Research Committee Chair: **Patricia M. Keith** — Date: 3/30/00 — Signature of Committee Chair: PM Keith

Office of the Registrar
Iowa State University
February 1981
Revised April 1995

USE OF STUDENT RECORDS FOR GRADUATE STUDENT RESEARCH

A graduate student may be provided information obtained from confidential permanent record files under the following conditions:

1. The written approval of his/her major professor must be obtained.

2. The written permission of each individual student who is a part of the sample must be obtained if the information compiled for release will identify the individual student. A copy of the release statements must be filed with the Office of the Registrar.

3. Any research involving human subjects must be approved by the Committee On The Use Of Human Subjects In Research and a copy of the approval must be filed with the Office of the Registrar.

4. In most situations, it will be necessary for an employee of the Office of the Registrar to collect the required data for the research. In such situations, the researcher must agree to reimburse the Office of the Registrar for the actual costs incurred in the collection of the data.

5. Every precaution must be taken to preserve the privacy of the individual students and the confidentiality of the data collected. The researcher must acknowledge his/her responsibility in this regard and agree to preserve the confidentiality of the data.

I have read the conditions listed above, I understand and accept the obligations listed above, and I accept the responsibility to preserve the confidentiality of the information.

Deborah Holmes
Signature of Researcher

3-20-00
Date of Signature

Nancy J Barnes
Approved - Major Professor

3/21/00
Date of Signature

g:\off_info\grdrsch.doc

Noel-Levitz™
a USA Group company

Your single source for enrollment results

July 10, 2000

Deb Holmes
Academic Advisor, Industrial Engineering
Iowa State University
2019 Black Engineering
Ames, IA 50011

Dear Deb:

This is to confirm that you have permission to include a copy of the Noel-Levitz Student Satisfaction Inventory™, as well as copy of your Campus Report, in the appendix of your dissertation.

Please let me know if you need more information. Thank you.

Sincerely,

Julie Bryant
Program Consultant

2101 ACT Circle, Iowa City, IA 52245-9581
319 337-4700 Fax 319 337-5274
www.noellevitz.com

APPENDIX G

FOLLOW-UP LETTER

College of Education
Iowa State University
April 17, 2000

Dear National Merit Scholar,

Your completed Student Satisfaction Inventory has not been received. Your input is **critical** to my research and will provide the university with valuable information, which will be used to instigate the changes, you feel are important.

If you have already returned your survey, please disregard this letter. If you need another survey please contact me through e-mail at deide@iastate.edu.

The final deadline for returning this survey is Friday, April 21st.

Thank You.

Sincerely,

Deborah Holmes
Graduate Student, Higher Education

APPENDIX H

SPSS DATA SET

T-Test

Group Statistics

	B	N	Mean	Std. Deviation	Std. Error Mean
A	1.00	321	5.4299	1.5069	8.411E-02
	2.00	3634	5.0790	1.3905	2.307E-02

Academic Advising

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
A	Equal variances assumed	4.693	.030	4.304	3953	.000	.3509	8.153E-02	.1911	.5108
	Equal variances not assumed			4.024	369.760	.000	.3509	8.721E-02	.1794	.5224

T-Test

Group Statistics

	B	N	Mean	Std. Deviation	Std. Error Mean
A	1.00	1066	5.1717	1.4598	4.471E-02
	2.00	13132	5.1718	1.2922	1.128E-02

Campus Climate

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
A	Equal variances assumed	34.424	.000	-.003	14196	.998	-1.2430E-04	4.158E-02	-8.16E-02	8.137E-02
	Equal variances not assumed			-.003	1204.395	.998	-1.2430E-04	4.611E-02	-9.06E-02	9.034E-02

T-Test

Group Statistics

	B	N	Mean	Std. Deviation	Std. Error Mean
A	1.00	896	5.0089	1.4236	4.756E-02
	2.00	10871	5.1394	1.3069	1.253E-02

Campus Life

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
A	Equal variances assumed	4.514	.034	-2.851	11765	.004	-.1304	4.575E-02	-.2201	-4.08E-02
	Equal variances not assumed			-2.652	1023.243	.008	-.1304	4.918E-02	-.2269	-3.39E-02

T-Test

Group Statistics

	B	N	Mean	Std. Deviation	Std. Error Mean
A	1.00	400	5.3675	1.1339	5.669E-02
	2.00	4975	5.2342	1.2951	1.836E-02

Campus Support Services

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
A	Equal variances assumed	8.829	.003	1.998	5373	.046	.1333	6.672E-02	2.532E-03	.2641
	Equal variances not assumed			2.237	486.659	.026	.1333	5.959E-02	1.624E-02	.2504

T-Test

Concern for the Individual

Group Statistics

	B	N	Mean	Std. Deviation	Std. Error Mean
A	1.00	360	5.0417	1.3397	7.061E-02
	2.00	4383	4.8802	1.2902	1.949E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
A	Equal variances assumed	.362	.547	2.276	4741	.023	.1614	7.095E-02	2.236E-02	.3005
	Equal variances not assumed			2.204	415.576	.028	.1614	7.325E-02	1.746E-02	.3054

T-Test

Instructional Effectiveness

Group Statistics

	B	N	Mean	Std. Deviation	Std. Error Mean
A	1.00	899	5.3326	1.2421	4.143E-02
	2.00	10871	5.1241	1.3222	1.268E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
A	Equal variances assumed	3.446	.063	4.564	11768	.000	.2085	4.568E-02	.1190	.2980
	Equal variances not assumed			4.812	1073.395	.000	.2085	4.333E-02	.1235	.2935

T-Test

Group Statistics

	B	N	Mean	Std. Deviation	Std. Error Mean
A	1.00	344	5.2762	1.2369	6.669E-02
	2.00	4197	4.8354	1.3593	2.098E-02

Recruitment and Financial Aid

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
A	Equal variances assumed	.736	.391	5.820	4539	.000	.4408	7.574E-02	.2923	.5893
	Equal variances not assumed			6.305	413.938	.000	.4408	6.991E-02	.3034	.5782

T-Test

Group Statistics

	B	N	Mean	Std. Deviation	Std. Error Mean
A	1.00	458	4.9083	1.3767	6.433E-02
	2.00	5601	4.9684	1.2891	1.722E-02

Service Excellence

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
A	Equal variances assumed	5.030	.025	-.954	6057	.340	-6.0102E-02	6.298E-02	-.1836	6.336E-02
	Equal variances not assumed			-.902	524.655	.367	-6.0102E-02	6.659E-02	-.1909	7.072E-02

T-Test

Group Statistics

	B	N	Mean	Std. Deviation	Std. Error Mean
A	1.00	383	5.2507	1.4380	7.348E-02
	2.00	4692	5.1935	1.2437	1.816E-02

Student Centeredness

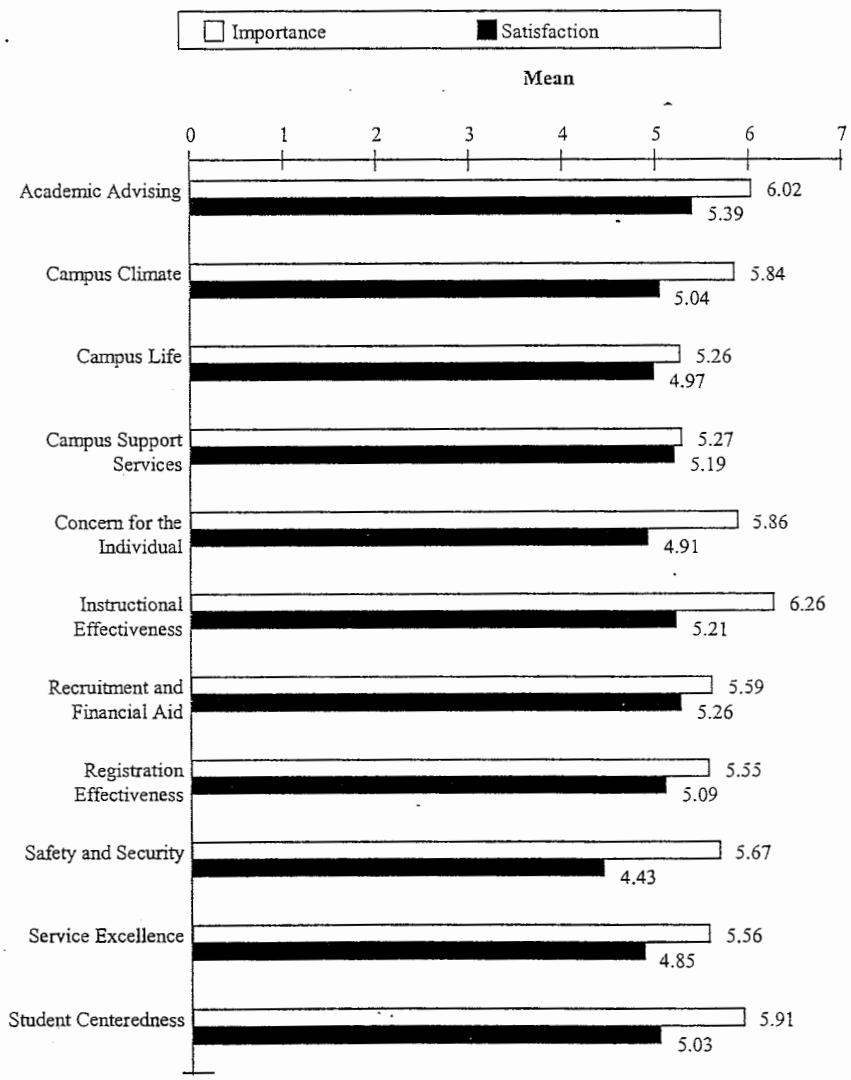
Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
A	Equal variances assumed	16.162	.000	.854	5073	.393	5.713E-02	6.693E-02	-7.41E-02	.1883
	Equal variances not assumed			.755	429.944	.451	5.713E-02	7.569E-02	-9.16E-02	.2059

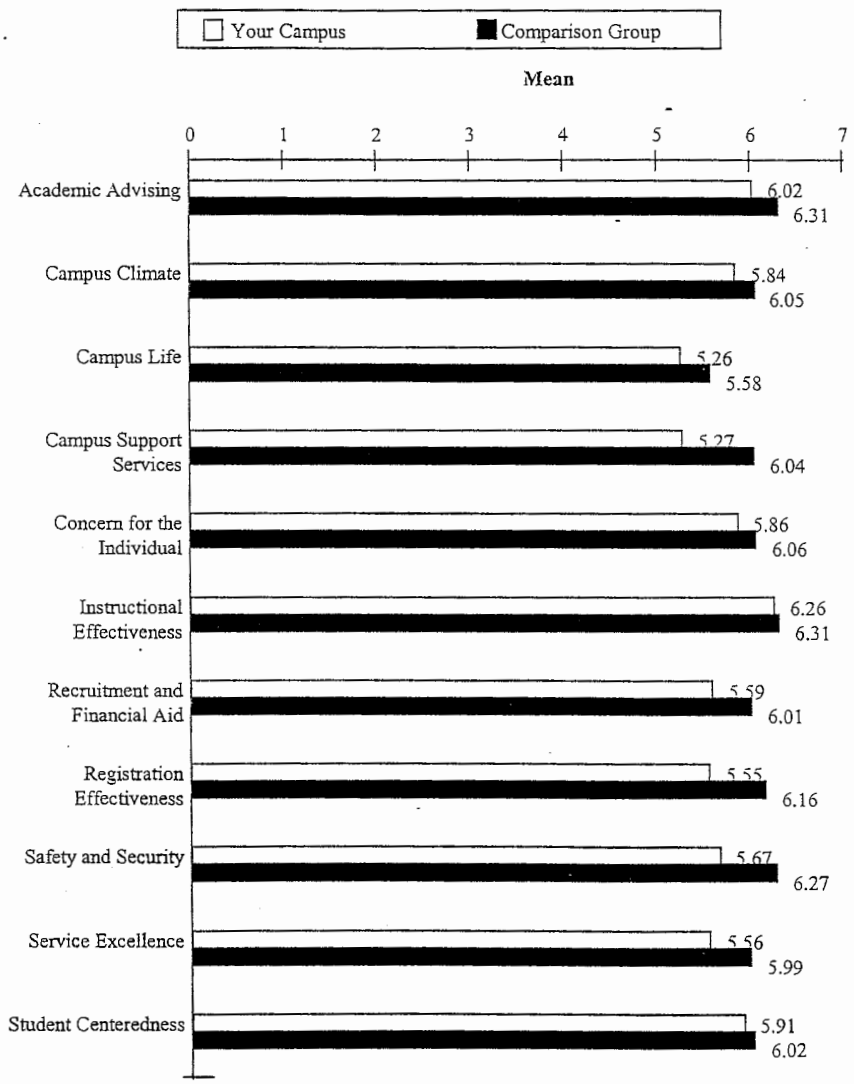
APPENDIX I

CAMPUS REPORT

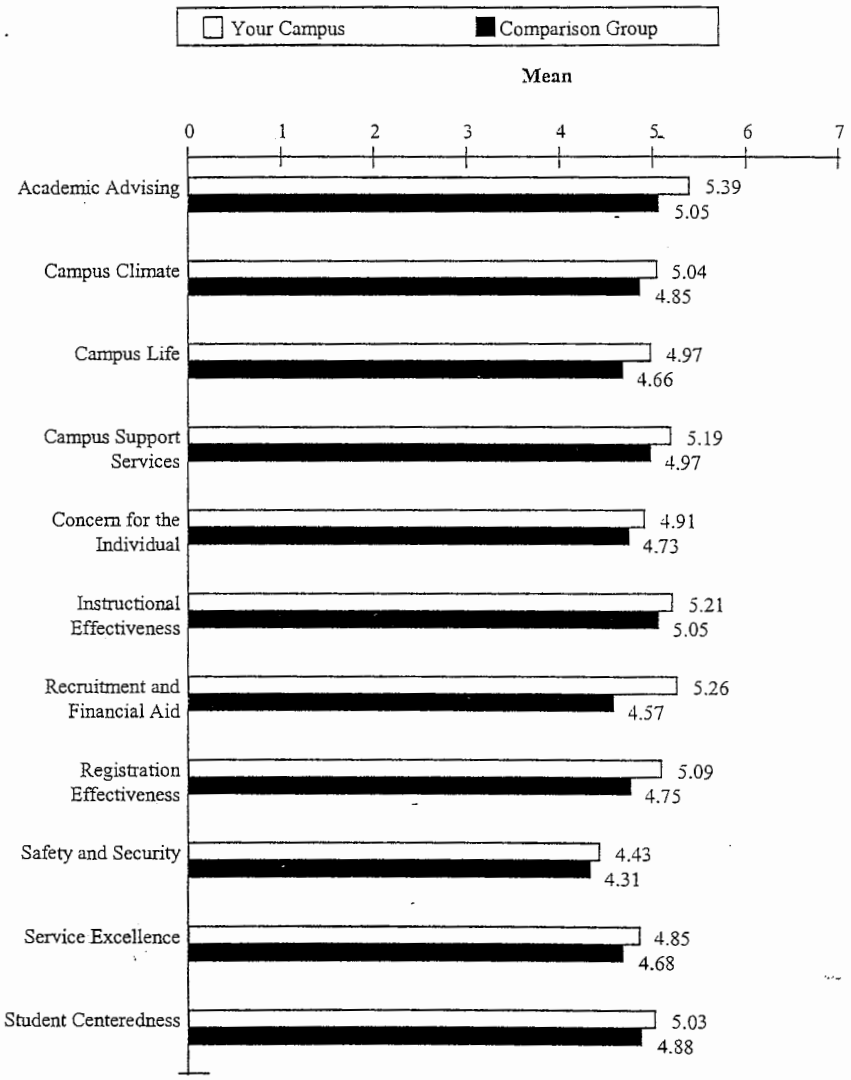
How Well Are We Meeting Our Students' Expectations?



What's Important to Our Students Compared to Other Four-Year Public Institutions?



How Satisfied Are Our Students Compared to Other Four-Year Public Institutions?



Institutional Summary

Scales: In Order of Importance to Our Students

	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
Scale	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
Instructional Effectiveness	6.26	5.21 / 0.76	1.05	6.31	5.05 / 0.98	1.26	0.16 *
Academic Advising	6.02	5.39 / 1.19	0.63	6.31	5.05 / 1.34	1.26	0.34 ***
Student Centeredness	5.91	5.03 / 0.96	0.88	6.02	4.88 / 1.12	1.14	0.15
Concern for the Individual	5.86	4.91 / 0.87	0.95	6.06	4.73 / 1.10	1.33	0.18 *
Campus Climate	5.84	5.04 / 0.84	0.80	6.05	4.85 / 1.01	1.20	0.19 **
Safety and Security	5.67	4.43 / 0.96	1.24	6.27	4.31 / 1.18	1.96	0.12
Recruitment and Financial Aid	5.59	5.26 / 0.85	0.33	6.01	4.57 / 1.14	1.44	0.69 ***
Service Excellence	5.56	4.85 / 0.82	0.71	5.99	4.68 / 1.01	1.31	0.17 *
Registration Effectiveness	5.55	5.09 / 0.85	0.46	6.16	4.75 / 1.12	1.41	0.34 ***
Campus Support Services	5.27	5.19 / 0.76	0.08	6.04	4.97 / 1.00	1.07	0.22 **
Campus Life	5.26	4.97 / 0.76	0.29	5.58	4.66 / 0.97	0.92	0.31 ***
Responsiveness to Diverse Populations		4.70 / 1.03			4.88 / 1.25		-0.18

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

National Group Means are based on 192306 students records.

Institutional Summary

Items: In Sequential Order

Item	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
1. Most students feel a sense of belonging here.	5.84	5.39 / 1.21	0.45	5.57	4.88 / 1.44	0.69	0.51 ***
2. The campus staff are caring and helpful.	5.97	5.31 / 1.13	0.66	6.24	4.93 / 1.43	1.31	0.38 ***
3. Faculty care about me as an individual.	5.90	4.88 / 1.27	1.02	6.07	4.73 / 1.48	1.34	0.15
4. Admissions staff are knowledgeable.	5.45	5.12 / 1.16	0.33	6.14	4.79 / 1.48	1.35	0.33 **
5. Financial aid counselors are helpful.	5.29	4.92 / 1.19	0.37	5.97	4.48 / 1.63	1.49	0.44 ***
6. My academic advisor is approachable.	6.34	5.76 / 1.54	0.58	6.42	5.26 / 1.71	1.16	0.50 ***
7. The campus is safe and secure for all students.	6.12	5.87 / 1.00	0.25	6.45	5.20 / 1.46	1.25	0.67 ***
8. The content of the courses within my major is valuable.	6.71	5.35 / 1.23	1.36	6.56	5.27 / 1.37	1.29	0.08
9. A variety of intramural activities are offered.	4.61	6.02 / 1.05	-1.41	4.86	4.94 / 1.37	-0.08	1.08 ***
10. Administrators are approachable to students.	5.05	4.14 / 1.41	0.91	5.79	4.65 / 1.38	1.14	-0.51 ***
11. Billing policies are reasonable.	5.50	4.96 / 1.28	0.54	6.07	4.50 / 1.60	1.57	0.46 ***
12. Financial aid awards are announced to students in time to be helpful in college planning.	6.12	5.69 / 1.26	0.43	6.09	4.41 / 1.66	1.68	1.28 ***

National Group Means are based on 192306 students records.

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

Institutional Summary

Items: In Sequential Order

Item	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
13. Library staff are helpful and approachable.	4.94	5.28 / 1.08	-0.34	5.93	5.18 / 1.45	0.75	0.10
14. My academic advisor is concerned about my success as an individual.	6.12	5.45 / 1.59	0.67	6.25	4.95 / 1.72	1.30	0.50 ***
15. The staff in the health services area are competent.	5.61	4.80 / 1.57	0.81	5.88	4.72 / 1.48	1.16	0.08
16. The instruction in my major field is excellent.	6.69	5.36 / 1.20	1.33	6.53	5.22 / 1.41	1.31	0.14
17. Adequate financial aid is available for most students.	5.74	5.35 / 1.34	0.39	6.23	4.41 / 1.71	1.82	0.94 ***
18. Library resources and services are adequate.	5.75	5.51 / 1.15	0.24	6.26	5.04 / 1.53	1.22	0.47 ***
19. My academic advisor helps me set goals to work toward.	4.97	4.66 / 1.49	0.31	6.00	4.59 / 1.73	1.41	0.07
20. The business office is open during hours which are convenient for most students.	5.05	4.80 / 1.26	0.25	5.94	4.79 / 1.48	1.15	0.01
21. The amount of student parking space on campus is adequate.	5.27	2.52 / 1.51	2.75	6.23	2.85 / 1.86	3.38	-0.33 *
22. Counseling staff care about students as individuals.	5.37	4.55 / 1.17	0.82	5.89	4.59 / 1.37	1.30	-0.04
23. Living conditions in the residence halls are	6.19	4.95 / 1.49	1.24	5.80	4.19 / 1.60	1.61	0.76 ***

National Group Means are based on 192306 students records.

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

Institutional Summary

Items: In Sequential Order

Item	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
comfortable (adequate space, lighting, heat, air, etc.)							
24. The intercollegiate athletic programs contribute to a strong sense of school spirit.	4.25	5.48 / 1.15	-1.23	5.20	4.55 / 1.60	0.65	0.93 ***
25. Faculty are fair and unbiased in their treatment of individual students.	6.41	5.46 / 1.08	0.95	6.38	4.87 / 1.51	1.51	0.59 ***
26. Computer labs are adequate and accessible.	5.91	5.44 / 1.28	0.47	6.31	4.83 / 1.67	1.48	0.61 ***
27. The personnel involved in registration are helpful.	5.38	5.02 / 1.20	0.36	6.15	4.86 / 1.51	1.29	0.16
28. Parking lots are well-lighted and secure.	5.30	4.53 / 1.51	0.77	6.20	4.60 / 1.64	1.60	-0.07
29. It is an enjoyable experience to be a student on this campus.	6.59	5.75 / 1.23	0.84	6.22	5.08 / 1.52	1.14	0.67 ***
30. Residence hall staff are concerned about me as an individual.	5.27	4.89 / 1.37	0.38	5.31	4.50 / 1.49	0.81	0.39 ***
31. Males and females have equal opportunities to participate in intercollegiate athletics.	4.61	5.34 / 1.18	-0.73	5.37	4.97 / 1.35	0.40	0.37 ***
32. Tutoring services are readily available.	4.57	5.13 / 1.10	-0.56	5.91	5.00 / 1.46	0.91	0.13
33. My academic advisor is knowledgeable about	6.49	5.76 / 1.44	0.73	6.50	5.35 / 1.66	1.15	0.41 ***

National Group Means are based on 192306 students records.

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

Institutional Summary

Items: In Sequential Order

Item	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
requirements in my major.							
34. I am able to register for classes I need with few conflicts.	6.49	5.21 / 1.64	1.28	6.54	4.59 / 1.84	1.95	0.62 ***
35. The assessment and course placement procedures are reasonable.	5.81	5.43 / 1.17	0.38	6.05	4.83 / 1.42	1.22	0.60 ***
36. Security staff respond quickly in emergencies.	5.99	4.84 / 1.24	1.15	6.20	4.68 / 1.45	1.52	0.16
37. I feel a sense of pride about my campus.	5.38	5.63 / 1.26	-0.25	5.73	4.95 / 1.53	0.78	0.68 ***
38. There is an adequate selection of food available in the cafeteria.	5.55	4.42 / 1.55	1.13	5.69	4.17 / 1.76	1.52	0.25 *
39. I am able to experience intellectual growth here.	6.54	5.68 / 1.12	0.86	6.33	5.35 / 1.31	0.98	0.33 ***
40. Residence hall regulations are reasonable.	5.71	4.48 / 1.55	1.23	5.48	4.49 / 1.56	0.99	-0.01
41. There is a commitment to academic excellence on this campus.	6.25	4.95 / 1.40	1.30	6.26	5.08 / 1.38	1.18	-0.13
42. There are a sufficient number of weekend activities for students.	5.34	4.66 / 1.45	0.68	5.33	4.15 / 1.63	1.18	0.51 ***
43. Admissions counselors respond to prospective	5.27	5.24 / 1.22	0.03	5.83	4.62 / 1.41	1.21	0.62 ***

National Group Means are based on 192306 students records.

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

Institutional Summary

Items: In Sequential Order

Item	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
students' unique needs and requests.							
44. Academic support services adequately meet the needs of students.	5.37	5.06 / 1.01	0.31	5.92	4.75 / 1.36	1.17	0.31 **
45. Students are made to feel welcome on this campus.	6.05	5.43 / 1.27	0.62	6.12	5.06 / 1.46	1.06	0.37 ***
46. I can easily get involved in campus organizations.	5.80	5.85 / 1.10	-0.05	5.66	4.97 / 1.45	0.69	0.88 ***
47. Faculty provide timely feedback about student progress in a course.	6.15	4.77 / 1.24	1.38	6.22	4.76 / 1.52	1.46	0.01
48. Admissions counselors accurately portray the campus in their recruiting practices.	5.63	5.17 / 1.21	0.46	5.74	4.68 / 1.43	1.06	0.49 ***
49. There are adequate services to help me decide upon a career.	5.75	4.86 / 1.34	0.89	6.13	4.77 / 1.54	1.36	0.09
50. Class change (drop/add) policies are reasonable.	5.33	5.44 / 1.16	-0.11	6.10	5.02 / 1.58	1.08	0.42 ***
51. This institution has a good reputation within the community.	5.46	5.76 / 1.09	-0.30	6.09	5.33 / 1.45	0.76	0.43 ***
52. The student center is a comfortable place for students to spend their leisure time.	4.77	4.99 / 1.33	-0.22	5.61	4.92 / 1.52	0.69	0.07

National Group Means are based on 192306 students records.

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

Institutional Summary

Items: In Sequential Order

Item	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
53. Faculty take into consideration student differences as they teach a course.	5.26	4.67 / 1.25	0.59	6.04	4.56 / 1.54	1.48	0.11
54. Bookstore staff are helpful.	4.58	4.99 / 1.25	-0.41	5.79	5.16 / 1.48	0.63	-0.17
55. Major requirements are clear and reasonable.	6.21	5.30 / 1.26	0.91	6.37	5.11 / 1.48	1.26	0.19
56. The student handbook provides helpful information about campus life.	4.47	4.44 / 1.21	0.03	5.61	4.97 / 1.39	0.64	-0.53 ***
57. I seldom get the "run-around" when seeking information on this campus.	5.91	4.29 / 1.68	1.62	6.19	4.11 / 1.84	2.08	0.18
58. The quality of instruction I receive in most of my classes is excellent.	6.60	4.96 / 1.37	1.64	6.49	5.11 / 1.42	1.38	-0.15
59. This institution shows concern for students as individuals.	6.00	4.08 / 1.55	1.92	6.20	4.65 / 1.54	1.55	-0.57 ***
60. I generally know what's happening on campus.	5.58	5.24 / 1.22	0.34	5.66	4.62 / 1.52	1.04	0.62 ***
61. Adjunct faculty are competent as classroom instructors.	6.04	5.04 / 1.29	1.00	6.03	4.87 / 1.39	1.16	0.17
62. There is a strong commitment to racial harmony on	5.41	4.60 / 1.37	0.81	5.86	4.82 / 1.49	1.04	-0.22 *

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

National Group Means are based on 192306 students records.

Institutional Summary

Items: In Sequential Order

Item	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
this campus.							
63. Student disciplinary procedures are fair.	5.54	4.82 / 1.18	0.72	5.85	4.86 / 1.40	0.99	-0.04
64. New student orientation services help students adjust to college.	5.02	4.89 / 1.38	0.13	5.80	4.82 / 1.54	0.98	0.07
65. Faculty are usually available after class and during office hours.	5.93	5.59 / 1.01	0.34	6.35	5.36 / 1.42	0.99	0.23 *
66. Tuition paid is a worthwhile investment.	6.27	5.51 / 1.25	0.76	6.41	4.96 / 1.59	1.45	0.55 ***
67. Freedom of expression is protected on campus.	5.96	4.50 / 1.66	1.46	5.96	5.03 / 1.42	0.93	-0.53 ***
68. Nearly all of the faculty are knowledgeable in their field.	6.58	5.83 / 0.91	0.75	6.50	5.52 / 1.30	0.98	0.31 ***
69. There is a good variety of courses provided on this campus.	6.35	5.95 / 1.06	0.40	6.42	5.24 / 1.52	1.18	0.71 ***
70. Graduate teaching assistants are competent as classroom instructors.	6.19	4.40 / 1.52	1.79	6.06	4.74 / 1.51	1.32	-0.34 **
71. Channels for expressing student complaints are readily available.	5.67	4.14 / 1.38	1.53	5.95	4.34 / 1.55	1.61	-0.20

National Group Means are based on 192306 students records.

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

Institutional Summary

Items: In Sequential Order

Item	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
72. On the whole, the campus is well-maintained.	5.72	5.98 / 0.84	-0.26	6.17	5.40 / 1.40	0.77	0.58 ***
73. Student activities fees are put to good use.	5.65	4.81 / 1.31	0.84	6.03	4.22 / 1.68	1.81	0.59 ***
74. Campus item	4.55	4.87 / 1.39	-0.32				
75. Campus item	5.62	5.07 / 1.66	0.55				
76. Campus item	4.70	4.53 / 1.31	0.17				
77. Campus item	5.49	5.27 / 1.34	0.22				
78. Campus item	6.24	5.47 / 1.55	0.77				
84. Institution's commitment to part-time students?		4.86 / 1.06			4.89 / 1.36		-0.03
85. Institution's commitment to evening students?		4.56 / 1.10			4.80 / 1.42		-0.24
86. Institution's commitment to older, returning learners?		4.88 / 1.03			5.00 / 1.36		-0.12
87. Institution's commitment to under-represented populations?		4.60 / 1.31			4.88 / 1.36		-0.28 *
88. Institution's commitment to commuters?		4.60 / 1.28			4.71 / 1.58		-0.11

National Group Means are based on 192306 students records.

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

Institutional Summary

Items: In Sequential Order

Item	Our Institution Means Iowa State University - 5/2000			National Group Means Four-Year Public Institutions			Mean Difference (Satisfaction)
	Importance	Satisfaction/SD	Performance Gap	Importance	Satisfaction/SD	Performance Gap	Our Inst - Nat'l Group
89. Institution's commitment to students with disabilities?		4.71 / 1.25			5.01 / 1.42		-0.30 +
90. Cost as factor in decision to enroll.	5.78			6.04			
91. Financial aid as factor in decision to enroll.	6.72			5.55			
92. Academic reputation as factor in decision to enroll.	5.95			5.80			
93. Size of institution as factor in decision to enroll.	4.49			5.09			
94. Opportunity to play sports as factor in decision to enroll.	2.11			3.32			
95. Recommendations from family/friends as factor in decision to enroll.	3.93			4.58			
96. Geographic setting as factor in decision to enroll.	4.77			5.35			
97. Campus appearance as factor in decision to enroll.	5.08			5.06			
98. Personalized attention prior to enrollment as factor in decision to enroll.	5.26			4.90			

National Group Means are based on 192306 students records.

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

Summary Items

Summary Item	Our Institution Iowa State University - 5/2000 Group Mean / SD	National Group Four-Year Public Institutions Group Mean / SD	Mean Difference Our Institution - National Group
So far, how has your college experience met your expectations? 1=Much worse than expected, 7=Much better than expected	4.77 / 1.13	4.37 / 1.23	0.40 ***
Rate your overall satisfaction with your experience here thus far. 1=Not satisfied at all, 7=Very satisfied	5.75 / 1.27	5.08 / 1.43	0.67 ***
All in all, if you had to do it over, would you enroll here again? 1=Definitely not, 7=Definitely yes	5.90 / 1.43	5.19 / 1.76	0.71 ***

* Difference statistically significant at the .05 level
** Difference statistically significant at the .01 level
*** Difference statistically significant at the .001 level

The National Group averages are based on 192306 students records.

REFERENCES

Anolik, S. A. (1980). The relationship between the self-concept and satisfaction with college among younger and older college students. College Student Journal, 14(2), 196-202.

Astin, A. W. (1977). Four critical years: Effects of college on beliefs, attitudes, and knowledge. San Francisco: Jossey-Bass.

Behuniak, P. J., & Gable, R. K. (1980). The influence of sex and college major on students' attitudes about future employment and satisfaction with college. Washington D. C.: National Science Foundation. (ERIC Document Reproduction Service No. ED 191 417)

Bennett, C., & Okinaka, A. M. (1989). Factors related to persistence among Asian, Black, Hispanic, and White undergraduates at a predominantly White university: Comparison between first and fourth year cohorts. San Francisco, CA: Annual Meeting of the American Educational Research Association. (ERIC Document Reproduction Service No. ED 309 729)

Betz, E. L., Klingensmith, J. E., & Menne, J. W. (1970). The measurement and analysis of college student satisfaction. Measurement and Evaluation in Guidance, 3, 110-118.

Borg, W. R. & Gall, M. D. (1989). Educational Research. White Plains: Longman.

Canterbuty, R. M. (1989). Fifty days of unsolicited mail from colleges. The Journal of College Admissions, 125, 11-14.

Casto, R. A. (1995). Best predictors of student needs and expectations: Responding to the voice of the customer and orchestrating change in a two-year college. Ohio: Lima Technical College. (ERIC Document Reproduction Service No. ED 390 508)

DeVore, J. R., & Handal, P. J. (1981). The college student satisfaction questionnaire: A test-retest reliability study. Journal of College Student Personnel, 22(4), 299-301.

Dey, E. L. (1990). Evaluating college student retention: Comparative national data from the 1981-1984 entering freshman class. Boston, MA: Annual Meeting of the American Educational Research Association. (ERIC Document Reproduction Service No. ED 319 320)

Ethington, C. A., & Smart, J. C. (1986). Persistence to graduate education. Research in Higher Education, 24(3), 287-303.

Evans, N. J. (1983). Environmental assessment: Current practices and future directions. Journal of College Student Personnel, 24, 293-299.

Evans, N. J., Forney, D. S., & Guido-Dibrito, F. (1998). Student development in college. San Francisco: Jossey-Bass.

Friedlander, J. (1980). Are college support programs and services reaching high-risk students? Journal of College Student Personnel, 21(1) 23-28.

Gates, A. G., & Creamer, D. G. (1984). Two-year college attrition: Do student or institutional characteristics contribute most? Community/Junior College Quarterly, 8, 39-51.

Higgins A. S. (1982). Academic champions: The 1981 national merits from Indiana. The Journal of Student Financial Aid, 12(2), 22-36.

Higgins A. S. (1983). The bluebirds need corporate bread: More merit scholarships for the best and brightest. The College Board Review, 127, 2-5.

Higgins, A. S. (1984). The search for real scholarships for our academic champions. Chicago, IL: Association for the Study of Higher Education 1984 Annual Meeting Paper. (ERIC Document Reproduction Service No. ED 245 620)

Hinkle, D. E., Wiersma, W., & Jurs, S. G. (1998) Applied Statistics for the Behavioral Sciences. Boston: Houghton Mifflin Company.

House, D. J. (1998). The effects of entering characteristics and college experiences on student satisfaction and degree completion: An application of the input environment outcome assessment model. Minneapolis, MN: Annual Meeting of the Association for Institutional Research. (ERIC Document Reproduction Service No. ED 429 491)

Hurtado, S. (1995). Social interaction on campus: Differences among self-perceived ability groups. AIR 1995 Annual Forum Paper. (ERIC Document Reproduction Service No. ED 387 014)

Iowa State University (1999) Annual Statistical Report. Fall 1999.

Kapp, G. J. (1979). College extracurricular activities: Who participates and what are the benefits? Doctoral Dissertation, University of California, Los Angeles. (University Microfilms no. 80-01,378)

Kegan, D. L. (1978). The quality of student life and financial costs: The cost of social isolation. Journal of College Student Personnel, 19, 55-58.

Keller, M. J., & McKeown, M. P. (1984). Factors contributing to the postsecondary enrollment decisions of Maryland national merit and national achievement semifinalists. Chicago, IL: Association for the Study of Higher
Education 1984 Annual Meeting Paper. (ERIC Document Reproduction Service No. ED 245 598)

Kennedy, G. J., Gordon R. L., & Gordon, V. N. (1995). High and average ability: Implications for retention. NACADA Journal,15 (2) 9-19.

Krotseng, M. V. (1991). Predicting persistence from the student adaptation to college questionnaire: Early warning or siren song? San Francisco, CA: Association for Institutional Research. (ERIC Document Reproduction Service No. ED 336 036)

Litten, L. H. (n.d.) Ivy bound: High-ability students and college choice. Selective Admission Series. (ERIC Document Reproduction Service No. ED 350 902)

Lovejoy, M. C., Perkins, D. V., & Collins, J. E. (1995). Predicting fall semester breakups in college roommates: A replication using the social satisfaction questionnaire. Journal of College Student Development, 36(6), 594-602.

Lyons, P. E., and others (1983). Foundation for strategic choices for Frostburg State College. A report of the findings of the college's marketing task force. (ERIC Document Reproduction Service No. ED 248 786)

Maryland State Board for Higher Education. (1985) College plans of the 1985 Maryland national merit and national achievement semifinalists. Postsecondary Education Research Reports. (ERIC Document Reproduction Service No. ED 261 602)

Molnar, D. (1996). The impact of institutional effectiveness on student retention. Albuquerque, NM: Association for Institutional Research Annual Forum Paper. (ERIC Document Reproduction Service No. ED 397 721)

Noel-Levitz (1999). Campus report: Iowa State University, Spring 2000. Student Satisfaction Inventory. USA Group.

Ottinger, C. (1991). College going, persistence, and completion patterns in higher education: What do we know? Washington D.C.: American Council on Education. (ERIC Document Reproduction Service No. ED 381 102)

Pascarella, E. T. (1980). Student-faculty informal contact and college outcomes. Review of Educational Research, 50, 545-595.

Pascarella, E. T., & Terenzini, P. T. (1983). Predicting voluntary freshman year persistence/withdrawal behavior in a residential university: A path analytic validation of Tinto's model. Journal of Educational Psycholgy, 75, 215-226.

Pascarella, E. T.,& Terenzini, P. T. (1991). How college affects students. San Francisco: Jossey-Bass.

Peltier, G. (1989). Characteristics of national merit scholars from small rural schools. (ERIC Document Reproduction Service No. ED 317 343)

Pennington, D. C., Zvonkovic, A. M., & Wilson, S. L. (1989). Changes in college satisfaction across an academic term. Journal of College Student Development, 30(6), 528-535.

Pervin, L. A. (1967). A twenty-college study of student x college interaction using TAPE: Rationale, reliability, and validity. Journal of Educational Psychology, 58, 290-302.

Ramirez, K. M. (1983). Retention: Locking the revolving door. Santa Clara, CA: National Conference on Developmental Education. (ERIC Document Reproduction Service No. ED 229 075)

Starr, A. M., Betz, E. L., & Menne, J. W. (1972). Differences in college student satisfaction: Academic dropouts, nonacademic dropouts, and non-dropouts. Journal of Counseling Psychology, 19, 318-322.

Stern, G. G. (1970). People in context: Measuring person-environment congruence in education and industry. New York: John Wiley & Sons.

Sturtz, S. A. (1971). An analysis of age differences in college student satisfaction. Journal of College Student Personnel, 12, 220-222.

Tinto, V. (1987). Leaving college. Chicago: University of Chicago Press.

Weiler, W. C. (1996). Factors influencing the matriculation choices of high ability students. Economics of Education Review, 15(1), 23-36.

Westerman, W. S. (1993a). College/university choices Kansas national merit semifinalists: The class of 1993. Emporia, KS: Jones Institute for Educational Excellence. (ERIC Document Reproduction Service No. ED 368 138)

Westerman, W. S. (1993b). Kansas national merit semifinalists. Emporia, KS: Jones Institute for Educational Excellence. (ERIC Document Reproduction Service No. ED 364 002)

Widdows, R. & Hilton, P.J. (1990). Assessing the extent to which students' initial expectation of the higher education experience are being met. College and University, 65(2), 85-94.

ACKNOWLEDGEMENTS

I would like to begin by acknowledging my major professor, Dr. Nancy Evans. She has offered me guidance and support throughout my graduate work in higher education. She is an inspiration to her students and I feel very fortunate to have had the opportunity to know her.

I would also like to acknowledge my committee members, Dr. Cheryl Moller and Dr. Florence Hamrick. They both took the time to work with me and offer me valuable insight that made my final product one I could be proud of. They are excellent teachers, researchers, and mentors.

I would like to thank my Dad and Mom for always believing in me and encouraging me to work towards my goals and never give up. I was undoubtedly blessed with the two best parents in the world. I realize this more as each year goes by.

I would also like to thank my husband who has spent the first year of our marriage helping me to find the time to take classes, work on my thesis and begin a new job. He has always encouraged me to do what would make me the happiest and I don't take enough time to thank him for all he has done for me.

Finally, I would like to dedicate this work to my beautiful daughter, Karine Lee Holmes, who is six months old as I write this and didn't get to spend as much time with her mom as she should have in the first months of her life. I am happy to have my Master's degree but nothing could ever compare to the happiness she brings to my life daily. My goals in life our now her goals and I hope I can help to make all her dreams come true.